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Semester - V



An Introduction to Financial Economics

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An Introduction to Financial Economics

SEMESTER-V

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ECO-A-DSE-5-B(1)-TH-TU

Financial Economics [PE]

Total Marks : 100 (Theory/TH) 80 + Tutorial/Tu 15 + Internal Assessment 10 + Attendance : 10

Total Credits : [2(TH) + 1(Tu)] = 5.

No. of Lecture hours : 75, No. of Tutorial contact hours : 15

[Semester V]

ECO-A-DSE-5-B(1)-TH

1. Investment Theory and Portfolio Analysis (5 lecture hours)

- Deterministic cash flow streams : Basic theory of interest, discounting and present value, internal rate of return, evaluation criteria ; fixed-income securities, bond prices and yields, interest rate sensitivity and duration ; immunisation ; the term structure of interest rates, yield curves ; spot rates and forward rates.
- Single-period random cash flows : Random asset returns ; portfolios of assets ; portfolio mean and variance, feasible combinations of mean and variance, mean-variance portfolio analysis ; the Markowitz model and the two-fund theorem ; risk-free assets and the one-fund theorem.
- CAPM : The capital market line, the capital asset pricing model ; the beta of an asset and of a portfolio ; security market line, use of the CAPM model in investment analysis and as a pricing formula.

2. Options and Derivatives 20 lecture hours

- Introduction to derivatives and options : forward and futures contracts ; options ; other derivatives ; forward and future prices ; stock index futures ; interest rate futures ; the use of futures for hedging ; duration-based hedging strategies ; option markets ; call and put options ; factors affecting option prices ; put-call parity ; option trading strategies : spreads ; straddles ; strips and strapes ; strangles ; the principle of arbitrage ; discrete processes and the binomial tree model ; risk-neutral valuation.

3. Corporate Finance 20 lecture hours

- Patterns of corporate financing : common stock, debt ; preferences, convertibles ; Capital structure and the cost of capital ; corporate debt and dividend policy ; the Modigliani-Miller theorem.

ECO-A-DSE-5-B(1)-TU

Tutorial Contact hours : 15

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Deterministic Cash-flow & Project Evaluation

The continuous growth and diversity in business activities on the one hand and the growing importance of financial assets with new analytical tools in the field of finance on the other have brought forward the importance of financial economics in general and the investment theory and portfolio analysis in particular. As a starting point of this analysis, we shall deal with the concepts of deterministic cash-flow stream, basic theory of interest, Net Present Value (NPV) and Internal Rate of Return (IRR) criteria for project evaluation in this chapter.

2. Deterministic cash flow stream

Normally an investment is defined in terms of a cash flow stream or sequence generated out of that investment during any particular time period. So, it is the flow of returns (cash) to an investment undertaken by any investor. Such cash flows usually occur at some definite intervals and these flows include both positive and negative cash flows. If there remains no uncertainty in these cash flows such as interest receipts from banks (on fixed deposits) at regular intervals, we call it deterministic cash flow.

If the investor spends, say, ₹1 crore for initiating any investment project then it would imply a negative cash flow at the beginning of the investment project. However, in subsequent years the project may generate positive cash flow to the tune of, say ₹2,00,000 p.m.

When any investment generates future income streams then there is a question of determining the present value of the future income stream. Interest rate on investment is generally used to determine the present value of the future cash flow. Hence, interest rate is often called as the time value of money.

2.1. Time Value of money

In simple terms, the time value of money means the difference in the value of money when it is received at different points of time. Normally, the value of a certain amount of money is more if it is received today rather than at some future date.

We can give three specific reasons for the differences in the value of money at different points of time :

- Inflationary pressure in an economy ;
- Preference for current consumption over future consumption by any individual ;
- Possibilities of investment opportunity before the investors to put their money in projects with an assured return.

As the inflationary pressure increases over time, the value of money or the purchasing power of money will fall. Similarly, if individuals prefer present consumption more than the future consumption, then any postponement of present consumption would mean that the money which has not been

said for present consumption, should yield sufficient return so that the future consumption can be increased sufficiently to compensate for the present sacrifice.

Further, money has a time value because any individual having some investible fund at present can invest it in some project that ensures a fixed rate of return on the principal amount per time period.

Thus, in financial analysis, the concept of time value of money is used to make a comparison between the cash flow at different points of time. The future value of an amount can be estimated by considering either a simple interest rate or a compound interest rate on the principal amount invested at present. Similarly, the present value of the future cash-flow stream can also be estimated using a definite discount rate. Again,

- the risks involved in any investment project, and
- the time for which the present consumption is being deferred, would also determine the time value of money.

If an investment project is more risky, the investor would naturally expect more return from the project. Any uncertainty in getting the return makes the project more risky. Hence, to make an equivalence between the money available at present and the money available in future from a risky venture, adequate returns are to be added with future stock of money.

Further, an individual can be induced to defer his/her present consumption if the amount of money he lends at present can bring in returns sufficient to compensate for that sacrifice for a long time.

1.3. Basic Theory of Interest

Let us first start with the notion of simple interest.

● **Simple Interest:** In this case, an investment generates an interest amount equal to ' r ' (interest rate) times the original investment every year. Further, there may be ' T ' fractions of 1 year (say, 6 months = 0.5 year) and in that case the interest income will be ' r ' times the original investment.

● **General Rule:** If ' A ' amount is invested at a simple interest rate of ' r ' for ' n ' number of years then the total value (V) to be received after ' n ' number of years will be $V = A(1 + nr)$ (1.1)

Example 1.1

If $A = ₹ 100$, $r = 10\% = 0.1$ and $n = 5$ years

Then $V = 100(1 + 0.1 \times 5) = 100 + 50$
 $= ₹ 150$

Let $t =$ fractional years (say, 5.5 years)

In this case, the total value received at a simple rate of interest (r) after ' T ' time period will be

$$V = A(1 + rt) \text{ (1.2)}$$

Example 1.2

If $A = ₹ 100$, $r = 10\% = 0.1$ and $t = 5.5$ years

Then $V = 100(1 + 0.1 \times 5.5)$
 $= 100(1.55)$
 $= ₹ 155$

● Compound Interest rate:

In case of compound interest rate, the interest rate is compounded yearly. Here, if an amount A is invested at a compound interest rate ' r ' for ' n ' number of years then the value received after that period is estimated by the following formula:

$$V = A(1 + r)^n \text{ (1.3)}$$

this case, we get a geometric growth of ' r '.

at $n = 4$ years then

$$A(1 + r) = \text{value after 1 year}$$

$$[A(1 + r)(1 + r) = A(1 + r)^2 = \text{value after 2 years}$$

$$[A(1 + r)^2(1 + r) = A(1 + r)^3 = \text{value after 3 years}$$

$$\text{and } [A(1 + r)^3(1 + r) = A(1 + r)^4 = \text{value after 4 years}]$$

Example 1.1

$$\text{If } A = ₹ 100, r = 10\% = 0.1$$

and $n = 4$ years.

$$\text{Then } V = 100(1 + 0.1)^4 \\ = ₹ 146.41$$

Here, the investor earns interest on interest, i.e., interest is *reinvested*. This feature is called as 'compounding'. In case of simple interest, the interest amount is not reinvested. In that case, interest is earned in each period only on the original principal amount ' A '. In our compound interest formula (4), the expression $(1 + r)^n$ is sometimes called as 'future value interest factor' or 'compounded value interest factor'.

In our example, this future value interest factor is $(1 + 0.1)^4 = 1.4641$

$$\text{and } V = 146.41$$

$$= 100(1.0) \times 1.1 \times 1.1 \times 1.1$$

$$= 100 \times (1.1)^4$$

$$= 100 \times 1.4641$$

$$= ₹ 146.41$$

So, in case of compound interest the future value of ₹ 1 invested for ' n ' years at an interest rate of ' r ' per year is ₹ $1 \times (1 + r)^n$.

In this compounding process, the value that the investor receives after ' n ' years has four parts:

- The original principal amount.
- The interest earned on the original principal amount (viz. the simple interest) per year.
- The interest on interest (viz. the compound interest) earned per year.
- The accumulated sum at the end of the period.

This can also be presented in a tabular form (Table 1.1).

Table 1.1

Future Value of ₹ 100 invested for 4 years at an interest rate of 10% p.a.

Year	Value at the beginning of each year (₹)	Simple interest (₹)	Compounded interest (₹)	Total interest (₹)	Value at the end of each year (₹)
1	100	10	—	10	110
2	110	11	1.00	11	121
3	121	12	2.10	12.10	133.10
4	133.10	13	3.31	13.31	146.41
Total		46	6.41	46.41	

7. If we have a sum of money, say ₹ 100, and we invest it at an interest rate of 10% per annum, then after 1 year, it will have grown to ₹ 110. This is the simple interest. If we invest it for 2 years, it will have grown to ₹ 120. This is the compound interest. The difference between simple and compound interest is that simple interest is calculated on the original principal amount, while compound interest is calculated on the principal amount plus the interest earned in previous periods.



Fig. 1

• 7.10 RULE

This rule suggests that, if some amount is invested at an interest rate of say 7% per cent, then this amount will be doubled in approximately 14 years. If the amount is invested at an interest rate of 11% per cent, then it will be doubled in approximately 9 years. Generally, if an amount A is invested at an interest rate of r p.a., it gets doubled in n years.

then $A(1+r)^n = 2A$

$$\text{or, } 1 + nr = 2$$

$$\text{or, } \ln(1+r)^n = \ln 2$$

$$\text{or, } n \ln(1+r) = 0.69$$

It can be shown that for a very small value of r (normally less than 20% p.a.), an amount A is doubled in approximately $\frac{72}{r}$ years, where $r = 100$.

Example 1.4

If ₹ 1 is invested at an annual fixed interest rate of 10% = 0.1

then it would take $\frac{72}{10} = 7.2$ years (approx) for ₹ 1 to grow to ₹ 2. In reality, however, $(1.1)^7 = 1.948$ and $(1.1)^8 = 2.143$. So, 8 years would be required to make ₹ 1 to grow up to ₹ 2 at 10% interest rate p.a. Similarly, it can be

stated that if ₹ 1 is invested at an annual fixed interest rate of 7% then it would take $\frac{72}{7} = 10.28$ (approx) years for ₹ 1 to grow to ₹ 2.

1.3.1 Nominal and real interest rate

When the interest rate is expressed in money terms, it is called nominal interest rate. For example, consider a person who has earned ₹ 100 as interest income by lending ₹ 1000 for one year to another

When $r = 0$, the real interest rate is equal to the nominal interest rate with

When $r > 0$, the real interest rate is $r = \frac{1 + i}{1 + \pi} - 1$ where i is the nominal interest rate and π is the inflation rate. There is an inverse relationship between r and π when i is constant. A graph of the relationship is shown below.

As an example, the nominal interest rate is 10% and the real interest rate is 5%. If the inflation rate is 5%, then the nominal interest rate is 10% and the real interest rate is 5%. If the inflation rate is 10%, then the real interest rate is 0%. If the inflation rate is 15%, then the real interest rate is -5%.

It is also apparent that the consumer price index shows the change in the price level. If the price level is 100 in the base year and 110 in the current year, then the inflation rate is 10%. The real interest rate is the nominal interest rate minus the inflation rate. If the nominal interest rate is 10% and the inflation rate is 10%, then the real interest rate is 0%.

$$r = \frac{1 + i}{1 + \pi} - 1$$

Suppose that the nominal interest rate is 10% and the inflation rate is 5%. Then the real interest rate is 5%. If the inflation rate is 10%, then the real interest rate is 0%. If the inflation rate is 15%, then the real interest rate is -5%.

$$r = \frac{1 + i}{1 + \pi} - 1$$

Similarly, the real interest rate is estimated as follows:

$$\text{Real interest rate} = \text{Nominal interest rate} - \text{inflation rate}$$

$$= 10\% - 5\% = 5\%$$

Alternatively, it can be estimated as follows:

$$\text{real interest rate} = \frac{(1 + \text{nominal interest rate})}{(1 + \text{inflation rate})} - 1$$

$$\text{real interest rate} = \frac{1 + \text{nominal interest rate}}{1 + \text{inflation rate}} - 1$$

In our example,

$$\text{real interest rate} = \frac{(1 + 0.10)}{1 + 0.05} - 1 = \frac{1.1}{1.05} - 1$$

$$= 1.0476 - 1 = 0.0476 = 4.76\%$$

The real interest rate falls with an increase in inflation rate and vice versa.

Example 1.4(a)

Suppose you get \$1,000 in maturity of a deposit of \$1,000 for one year. If the inflation rate for that year was 5%, what was the rate of interest you actually received on your deposit?

[C.M., B.Sc. (H), Sem-V, 2022]

Solution

$$\text{Here, } \$1,070 = \$1,000(1 + r)$$

$$\text{or, } \frac{1,070}{1,000} = (1 + r)$$

$$\text{or, } r = 1.07 - 1 = 0.07 \text{ or } 7\%$$

So, real rate of interest = 7% - 5% = 2%

where 5% = inflation rate.

1.4 Cash flow streams: Future Value

Consider a cash flow stream $\{C_t\}_{t=0}^T$ where C_t is the cash flow at time t . The future value of this cash flow stream at time T is given by:

$$FV = \sum_{t=0}^T C_t (1+r)^{T-t}$$

where r is the interest rate. If the cash flow stream is constant, i.e. $C_t = C$, then the future value is given by:

$$FV = C \frac{(1+r)^T - 1}{r}$$

Example: Suppose $C = 100$, $r = 0.1$, and $T = 10$. Then the future value is:

$$FV = 100 \frac{(1.1)^{10} - 1}{0.1} = 100 \frac{1.1^{10} - 1}{0.1}$$

$$\text{where } FV = \sum_{t=0}^T C_t (1+r)^{T-t}$$

where r is the interest rate. If the cash flow stream is constant, i.e. $C_t = C$, then the future value is given by:

Example: Suppose $C = 100$, $r = 0.1$, and $T = 10$. Then the future value is:

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1.4.1 Determining Cash Flow & Project Evaluation

Example 1.4.1

Suppose a project costs £100,000 and generates cash flows of £10,000 per year for 10 years. The interest rate is 10%. What is the NPV of the project?

Period	Cost of the investment (£)	Interest (%)	Value at the end of period (£)
0	100,000	10	100,000
1	10,000	10	11,000
2	10,000	10	22,000
3	10,000	10	33,000
4	10,000	10	44,000
5	10,000	10	55,000
6	10,000	10	66,000
7	10,000	10	77,000
8	10,000	10	88,000
9	10,000	10	99,000
10	10,000	10	110,000

The NPV of the project is the sum of the present values of the cash flows minus the initial investment. The NPV is given by:

$$NPV = -100,000 + \sum_{t=1}^{10} \frac{10,000}{(1.1)^t}$$

where r is the interest rate.

Example: Suppose $r = 0.1$, then the NPV is:

$$NPV = -100,000 + \sum_{t=1}^{10} \frac{10,000}{(1.1)^t}$$

$$NPV = -100,000 + \sum_{t=1}^{10} \frac{10,000}{(1.1)^t}$$

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$$NPV = -100,000 + \sum_{t=1}^{10} \frac{10,000}{(1.1)^t}$$

1.4.2 Quarterly compounding

If an interest rate is compounded every three months (i.e. there will be four compounding periods in a year) at a rate of $\frac{1}{4}$ th of annual interest rate then it is called as quarterly compounding.

Here also we can use the formula $V = A \left(1 + \frac{r}{m}\right)^{mt}$ to determine the value received (V) at the end of the period.

For example, if $A = £1,000$, $r = 10\%$, $m = 4$ and $t = 2$ years then

$$V = 1000 \left(1 + \frac{0.1}{4}\right)^{4 \times 2}$$

$$= 1000 (1.025)^8$$

$$= 1000 (1.2184) = £1,218.40$$

1.4.3 Monthly compounding

When the interest rate is compounded at the end of every month within a given year it is called monthly compounding. So in this case there will be 12 compounding periods within a given year. We can use the same formula ($V = A \left(1 + \frac{r}{m}\right)^{mt}$) to determine the value received at the end of the investment period.

Abstract

2004 年 12 月 1 日

Figure 1

11. The number of students who are members of both the chess and the basketball teams is 10.

1990-1991



in the management of

$$e^{-\frac{1}{2} \lambda^2} \approx 1 - \frac{1}{2} \lambda^2$$

Polymers of the form

44

Feb 4 1977

[illegible]

[illegible]

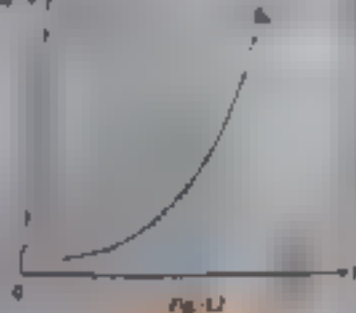
[illegible]

$$f^{\text{Hess}}(\text{imp} + \text{val}) \approx 1 + \frac{1}{2} \text{Hess} \frac{1}{x} = \frac{1}{2} + \frac{1}{2m},$$

$$\frac{d}{dt} \left(\frac{1}{2} m v^2 \right) = \frac{d}{dt} \left(\frac{1}{2} m \left(\frac{dx}{dt} \right)^2 \right)$$

$$Y = A_T^n \quad (1.8)$$

It implies that V grows exponentially at the rate of r .



10

[illegible]

100

[illegible]+ 4 b. β -function: $\beta_{\text{IR}} = -\beta_{\text{UV}}$ ratio

1. The first part of the report is a general introduction to the project, which includes the objectives, scope, and methodology.

Year	Fish	#	Abundance	Sp. index	Less	abundance	SP
1960	10	10	10	10	10	10	10
1961	10	10	10	10	10	10	10
1962	10	10	10	10	10	10	10
1963	10	10	10	10	10	10	10
1964	10	10	10	10	10	10	10
1965	10	10	10	10	10	10	10
1966	10	10	10	10	10	10	10
1967	10	10	10	10	10	10	10
1968	10	10	10	10	10	10	10
1969	10	10	10	10	10	10	10
1970	10	10	10	10	10	10	10
1971	10	10	10	10	10	10	10
1972	10	10	10	10	10	10	10
1973	10	10	10	10	10	10	10
1974	10	10	10	10	10	10	10
1975	10	10	10	10	10	10	10
1976	10	10	10	10	10	10	10
1977	10	10	10	10	10	10	10
1978	10	10	10	10	10	10	10
1979	10	10	10	10	10	10	10
1980	10	10	10	10	10	10	10
1981	10	10	10	10	10	10	10
1982	10	10	10	10	10	10	10
1983	10	10	10	10	10	10	10
1984	10	10	10	10	10	10	10
1985	10	10	10	10	10	10	10
1986	10	10	10	10	10	10	10
1987	10	10	10	10	10	10	10
1988	10	10	10	10	10	10	10
1989	10	10	10	10	10	10	10
1990	10	10	10	10	10	10	10
1991	10	10	10	10	10	10	10
1992	10	10	10	10	10	10	10
1993	10	10	10	10	10	10	10
1994	10	10	10	10	10	10	10
1995	10	10	10	10	10	10	10
1996	10	10	10	10	10	10	10
1997	10	10	10	10	10	10	10
1998	10	10	10	10	10	10	10
1999	10	10	10	10	10	10	10
2000	10	10	10	10	10	10	10
2001	10	10	10	10	10	10	10
2002	10	10	10	10	10	10	10
2003	10	10	10	10	10	10	10
2004	10	10	10	10	10	10	10
2005	10	10	10	10	10	10	10
2006	10	10	10	10	10	10	10
2007	10	10	10	10	10	10	10
2008	10	10	10	10	10	10	10
2009	10	10	10	10	10	10	10
2010	10	10	10	10	10	10	10
2011	10	10	10	10	10	10	10
2012	10	10	10	10	10	10	10
2013	10	10	10	10	10	10	10
2014	10	10	10	10	10	10	10

[illegible]

204 *Environ. Monit. Assess.* (2008) 142:201–209

• $\frac{1}{2}$ of the population is in the 10-20 age group

$$\mathbf{A} = \begin{bmatrix} 1 & 0 & 0 \\ 0 & 1 & 0 \\ 0 & 0 & 1 \end{bmatrix}, \quad \mathbf{B} = \begin{bmatrix} 0 & 0 & 0 \\ 0 & 0 & 0 \\ 0 & 0 & 0 \end{bmatrix}, \quad \mathbf{C} = \begin{bmatrix} 0 & 0 & 0 \\ 0 & 0 & 0 \\ 0 & 0 & 0 \end{bmatrix}, \quad \mathbf{D} = \begin{bmatrix} 0 & 0 & 0 \\ 0 & 0 & 0 \\ 0 & 0 & 0 \end{bmatrix}$$

→ $\text{Net Profit} = \text{Sales} - \text{Costs} = 100 - 80 = 20$

The following steps will ensure that the solution is correct:

- (1) The solution must satisfy the original equation.

by a pair of counterweight springs, pulling a full range of divided into smaller segments, and was put

— 107 —

 $\Gamma \neq \emptyset$ is the case of regularity, $\Gamma = \emptyset$ is the case of irregularity.

68	$x_2 = x^2$	1	41.57
----	-------------	---	-------

^aAdjusted for $P = 1.07\%$ (standard error) = 1.07%

jsimulink can calculate this value using scientific calculator **COMPLEX**

$$r_d = 1.10\% \quad 1 + 0.10\% = 1.0110\%$$

$\lambda_{\text{eff}} = 2$ (i.e. worst-case comparison)

$$\text{Hence } r_2 = r_1 \left(1 + \frac{2.5\%}{2}\right)^2$$

$$\epsilon_2 = 10^2 - 1$$

$$w = 1.001\text{m} - 1$$

= 0.0014

08 01 16

Therefore $r_n \geq r$.



1.1 Discounting and Present Value

The time value of money is the concept that a dollar received today is worth more than a dollar received in the future. This is because a dollar received today can be invested and earn interest, while a dollar received in the future cannot.

The present value (PV) of a future cash flow is the amount of money that, if invested today at a given interest rate, would grow to equal the future cash flow. The formula for calculating the present value of a single cash flow is:

$$PV = \frac{FV}{(1 + r)^n}$$

where FV is the future value, r is the interest rate, and n is the number of periods.

For example, if you want to receive \$100 in 5 years and the interest rate is 10%, the present value of that \$100 is approximately \$68.06. This means that if you invest \$68.06 today at 10% interest, it will grow to \$100 in 5 years.

The present value of a series of cash flows (an annuity) can be calculated using the following formula:

$$PV = \frac{C}{r} \left(1 - \frac{1}{(1 + r)^n} \right)$$

where C is the cash flow per period, r is the interest rate, and n is the number of periods.

For example, if you want to receive \$100 per year for 5 years and the interest rate is 10%, the present value of that annuity is approximately \$379.08. This means that if you invest \$379.08 today at 10% interest, it will grow to equal the series of \$100 payments over 5 years.

Example 1.1

Suppose you are offered a choice between two investment opportunities. The first opportunity is to receive \$100 at the end of each year for the next 5 years. The second opportunity is to receive a single lump sum of \$500 today. If the interest rate is 10%, which opportunity is more valuable?

To answer this question, we need to calculate the present value of the first opportunity. Using the formula for the present value of an annuity, we get:

$$PV = \frac{100}{0.10} \left(1 - \frac{1}{(1 + 0.10)^5} \right) = 379.08$$

Since the present value of the first opportunity (\$379.08) is less than the lump sum of \$500, the second opportunity is more valuable.

4.4. Number between Proper Value and Proper Value

The number between proper value and proper value is the number of proper values between the proper value and the proper value.

The number between proper value and proper value is the number of proper values between the proper value and the proper value.

4.5. Proper Value of an Activity

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4.6. Proper Value of a Proper Value

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4.7. Proper Value of a Proper Value

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4.8. Proper Value of a Proper Value

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4.9. Proper Value of a Proper Value

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4.10. Proper Value of a Proper Value

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The proper value of a proper value is the proper value of the proper value.

3.7 Finding Value of a Partial Derivative

Example 1: Find the value of the partial derivative $\frac{\partial z}{\partial x}$ at the point $(1, 2, 3)$ for the function $z = x^2 + y^2 + z^2$.

$$z = x^2 + y^2 + z^2$$

Step 1: Differentiate both sides with respect to x .

$$\frac{\partial}{\partial x}(x^2 + y^2 + z^2) = \frac{\partial}{\partial x}(x^2 + y^2 + z^2)$$

$$2x + 0 + 2z \frac{\partial z}{\partial x} = 2x + 0 + 2z \frac{\partial z}{\partial x}$$

$$2z \frac{\partial z}{\partial x} = 0$$

$$\frac{\partial z}{\partial x} = 0$$

$$P = \frac{\partial z}{\partial x} = 0 \text{ at } (1, 2, 3)$$

Example 2:

$$z = \frac{1}{x^2} + \frac{1}{y^2} + \frac{1}{z^2}$$

$$P = \frac{\partial z}{\partial x}$$

$$Q = \frac{\partial z}{\partial y}$$

$$R = \frac{\partial z}{\partial z}$$

$$P = -\frac{2}{x^3}$$

3.8 Example 1

Partial	Value at	Point	Value
$\frac{\partial z}{\partial x}$	1	2	3
$\frac{\partial z}{\partial y}$	1	2	3
$\frac{\partial z}{\partial z}$	1	2	3

Step 1: Differentiate both sides with respect to x .

$$\frac{\partial}{\partial x}(x^2 + y^2 + z^2) = \frac{\partial}{\partial x}(x^2 + y^2 + z^2)$$

Step 2: Differentiate both sides with respect to y .

$$\frac{\partial}{\partial y}(x^2 + y^2 + z^2) = \frac{\partial}{\partial y}(x^2 + y^2 + z^2)$$

$$= 2y + 2z \frac{\partial z}{\partial y}$$

$$= 2y + 2z \frac{\partial z}{\partial y}$$

6.2 Present Value of Annuity

Example 1

Example 2

7 Net Present Value (NPV)

The NPV of an investment is the difference between the present value of the cash inflows and the present value of the cash outflows. It is a measure of the profitability of an investment. If the NPV is positive, the investment is profitable. If the NPV is negative, the investment is not profitable. If the NPV is zero, the investment is break-even.

The NPV of an investment can be calculated using the following formula:

$$NPV = \sum_{t=0}^n \frac{C_t}{(1+r)^t}$$

where C_t is the cash flow at time t , and r is the discount rate. The NPV of an investment is the sum of the present values of all cash flows. The NPV of an investment is the difference between the present value of the cash inflows and the present value of the cash outflows.

The NPV of an investment is the difference between the present value of the cash inflows and the present value of the cash outflows. It is a measure of the profitability of an investment. If the NPV is positive, the investment is profitable. If the NPV is negative, the investment is not profitable. If the NPV is zero, the investment is break-even.

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7.1 Evaluation of an Investment Project

The NPV of an investment project is the difference between the present value of the cash inflows and the present value of the cash outflows. It is a measure of the profitability of an investment project. If the NPV is positive, the investment project is profitable. If the NPV is negative, the investment project is not profitable. If the NPV is zero, the investment project is break-even.

Conventional cash flows

The NPV of an investment project is the difference between the present value of the cash inflows and the present value of the cash outflows. It is a measure of the profitability of an investment project. If the NPV is positive, the investment project is profitable. If the NPV is negative, the investment project is not profitable. If the NPV is zero, the investment project is break-even.

Solution

Step 1: Calculate the present value of the cash flows for each machine.

Machine 1

$$PV_1 = \frac{100,000}{1.05} + \frac{100,000}{1.05^2} + \frac{100,000}{1.05^3} + \frac{100,000}{1.05^4} + \frac{100,000}{1.05^5} + \frac{100,000}{1.05^6} + \frac{100,000}{1.05^7} + \frac{100,000}{1.05^8} + \frac{100,000}{1.05^9} + \frac{100,000}{1.05^{10}} = 1,000,000$$

$$PV_1 = 100,000 \times \left(\frac{1 - 1.05^{-10}}{0.05} \right) = 100,000 \times 7.7217 = 772,170$$

$$PV_1 = 772,170$$

$$PV_1 = 772,170$$

Machine 2

$$PV_2 = \frac{100,000}{1.05} + \frac{100,000}{1.05^2} + \frac{100,000}{1.05^3} + \frac{100,000}{1.05^4} + \frac{100,000}{1.05^5} + \frac{100,000}{1.05^6} + \frac{100,000}{1.05^7} + \frac{100,000}{1.05^8} + \frac{100,000}{1.05^9} + \frac{100,000}{1.05^{10}} = 1,000,000$$

$$PV_2 = 100,000 \times \left(\frac{1 - 1.05^{-10}}{0.05} \right) = 100,000 \times 7.7217 = 772,170$$

$$PV_2 = 772,170$$

$$PV_2 = 772,170$$

$$PV_2 = 772,170$$

Step 2: Calculate the Net Present Value (NPV) for each machine. The NPV is the present value of the cash flows minus the initial investment.

For Machine 1: $NPV_1 = PV_1 - \text{Initial Investment} = 772,170 - 1,000,000 = -227,830$

For Machine 2: $NPV_2 = PV_2 - \text{Initial Investment} = 772,170 - 1,000,000 = -227,830$

Initial Investment

Year	Machine 1			Machine 2		
	Year	CF	NPV	Year	CF	NPV
1	0	-1,000,000	-1,000,000	0	-1,000,000	-1,000,000
	1	100,000	95,238	1	100,000	95,238
	2	100,000	90,703	2	100,000	90,703
	3	100,000	86,384	3	100,000	86,384
	4	100,000	82,270	4	100,000	82,270
2	5	100,000	78,352	5	100,000	78,352
	6	100,000	74,611	6	100,000	74,611
	7	100,000	71,058	7	100,000	71,058
	8	100,000	67,674	8	100,000	67,674
	9	100,000	64,451	9	100,000	64,451
Total			772,170			772,170

NPV = 772,170

NPV = 772,170

The first part of the document discusses the importance of maintaining accurate records of all transactions. It emphasizes that proper record-keeping is essential for the integrity of the financial system and for ensuring that all parties involved are held accountable. The document also mentions the need for transparency and the importance of providing clear and concise information to all stakeholders.

The second part of the document outlines the specific procedures for handling financial transactions. It details the steps that must be followed from the initial request for funds to the final disbursement. This includes the requirement for proper authorization and the need for all transactions to be properly documented and recorded. The document also discusses the importance of regular audits and the need for the system to be able to track all transactions in real-time.

The third part of the document discusses the role of the financial system in supporting the overall goals of the organization. It highlights the importance of the system in providing accurate and timely information to management and in ensuring that all financial activities are properly managed. The document also mentions the need for the system to be able to handle a wide range of transactions and to be able to provide detailed reports on all financial activity.

The fourth part of the document discusses the importance of maintaining the security of the financial system. It emphasizes that the system must be able to protect all financial data from unauthorized access and that it must be able to detect and prevent any attempts to tamper with the data. The document also mentions the need for the system to be able to handle a wide range of security threats and to be able to provide detailed reports on all security activity.

The fifth part of the document discusses the importance of maintaining the flexibility of the financial system. It emphasizes that the system must be able to adapt to changing requirements and that it must be able to handle a wide range of transactions. The document also mentions the need for the system to be able to provide detailed reports on all financial activity and to be able to handle a wide range of security threats.

The sixth part of the document discusses the importance of maintaining the scalability of the financial system. It emphasizes that the system must be able to handle a growing number of transactions and that it must be able to provide detailed reports on all financial activity. The document also mentions the need for the system to be able to handle a wide range of security threats and to be able to provide detailed reports on all security activity.

The seventh part of the document discusses the importance of maintaining the reliability of the financial system. It emphasizes that the system must be able to provide accurate and timely information to management and that it must be able to handle a wide range of transactions. The document also mentions the need for the system to be able to handle a wide range of security threats and to be able to provide detailed reports on all security activity.

The eighth part of the document discusses the importance of maintaining the integrity of the financial system. It emphasizes that the system must be able to protect all financial data from unauthorized access and that it must be able to detect and prevent any attempts to tamper with the data. The document also mentions the need for the system to be able to handle a wide range of security threats and to be able to provide detailed reports on all security activity.

Example 17.1

Year	0	1	2	3	4	5
Project A	-100	40	50	60	70	80
Project B	-100	50	60	70	80	90

Year	0	1	2	3	4	5
Project A	-100	40	50	60	70	80
Project B	-100	50	60	70	80	90

Solution

Year	0	1	2	3	4	5
Project A	-100	40	50	60	70	80
Project B	-100	50	60	70	80	90

Year	0	1	2	3	4	5
Project A	-100	40	50	60	70	80
Project B	-100	50	60	70	80	90

Since the NPV of Project A is greater than that of Project B, Project A is the preferred investment.

17.2 Merits of NPV method

The NPV method has several merits and demerits. The merits of the NPV method are:

Merits of the NPV method

The NPV method in appraising an investment project has several merits:

- 1. The NPV method recognizes the time value of money. This method takes into account the value of money in the future income stream of any investment project while ignoring the cost.
- 2. The NPV method recognizes the cash flows of any investment project over the life-span of the project are also taken into account in the NPV method.
- 3. The NPV method is also capable of accommodating changes in the cost of capital by changing the discount rate.

Example

1	2	3	4	5
100	100	100	100	100
100	100	100	100	100
100	100	100	100	100

2) Discounted Cash-Flow & Project Evaluation

Discount Rate 10%

Present Value 17% Factor

1	2	3	4	5
100	100	100	100	100
100	100	100	100	100

$$PV = \frac{100}{1.1} + \frac{100}{1.1^2} + \frac{100}{1.1^3} + \frac{100}{1.1^4} + \frac{100}{1.1^5} = 100 \times 4.1699 = 416.99$$

2) when rate of 10% discount rate is present, also factor should be applied. That may be written as follows:

Year	1	2	3	4	5
Cash Flow	100	100	100	100	100
Discount Factor	0.9091	0.8264	0.7513	0.6830	0.6209
Present Value	90.91	82.64	75.13	68.30	62.09
Total	416.99				

Sum of PV = 416.99

3) the market rate of interest is assumed to be 10% then this project is accepted since NPV is 416.99.

Example 24

4) we have to calculate NPV of undertaking the Project 1 & 2. Both and Present Value requires as follows: The rate of interest is 10% and that of Project 1 & 2 means the cash inflows in these two projects during their life span are as follows:

Year	Project 1	Project 2
1	100	100
2	100	100
3	100	100
4	100	100
5	100	100

discount rate = 10% (given) NPV of these projects = 100 (assumed) by the investor based on 10% discount rate. Therefore the market interest rate is 10%.

discounted and not the (NPV) of the project. It ignores the role of risk and it is subjective in the probability of investment appraisal.

The results under this method are by no means comparable to NPV method if the projects differ in their expected lives, investment or timing of cash inflows.

3.3 Relationship between NPV and IRR

Usually, we are provided with values of the discounted cash flows for various investment options in various decisions. We are also told that some important properties must be satisfied in investment appraisal and these are:

The project should evaluate all cash flows throughout the entire life of an investment project.

The interest rate (cost of money) and

the method of cash discounting must be mutually exclusive properties i.e. that projects are capable of preserving the same rank for the firm and hence of one or being accepted, the others will be rejected, and choose the project which will maximise the firm's value of the firm.

3.4 Similarities between NPV and IRR

NPV and IRR methods which properties are NPV and IRR lead to identical decisions regarding the selection of the value of the investment project. It is important to note that both methods require a required rate of return which is the rate of return. The IRR method is a method of determining the rate of return which is equal to or less than the IRR. It is also known that NPV is the sum of the discounted cash flows. If the NPV is zero, it implies that IRR is the rate of return. If the NPV is positive, it implies that IRR is greater than the required rate of return.

Using the NPV method, we can find the rate of return which is the IRR of the project. The IRR is the rate of return which is the NPV of the project is zero.

Let us assume a project of investment in a firm.

$$NPV = \frac{C_0}{1+r} + \frac{C_1}{1+r} + \frac{C_2}{1+r} + \dots + \frac{C_n}{1+r} = 0$$

Let us assume we have

$$C_0 = -100, C_1 = 50, C_2 = 50, C_3 = 50, C_4 = 50, C_5 = 50, C_6 = 50, C_7 = 50, C_8 = 50, C_9 = 50, C_{10} = 50$$

Let us assume the value of r is 10% or 0.10. We get

$$\sum_{t=0}^{10} \frac{C_t}{1+r} = 0$$

$$\sum_{t=0}^{10} \frac{C_t}{1+r} = 0 \Rightarrow \sum_{t=0}^{10} \frac{C_t}{1+r} = 0$$

Let us

Let us

Let us

Let us

1.1 Merits of the IRR method

1. It is a simple method of calculation.	2. It is a simple method of calculation.	3. It is a simple method of calculation.	4. It is a simple method of calculation.	5. It is a simple method of calculation.	6. It is a simple method of calculation.	7. It is a simple method of calculation.	8. It is a simple method of calculation.	9. It is a simple method of calculation.	10. It is a simple method of calculation.
11. It is a simple method of calculation.	12. It is a simple method of calculation.	13. It is a simple method of calculation.	14. It is a simple method of calculation.	15. It is a simple method of calculation.	16. It is a simple method of calculation.	17. It is a simple method of calculation.	18. It is a simple method of calculation.	19. It is a simple method of calculation.	20. It is a simple method of calculation.
21. It is a simple method of calculation.	22. It is a simple method of calculation.	23. It is a simple method of calculation.	24. It is a simple method of calculation.	25. It is a simple method of calculation.	26. It is a simple method of calculation.	27. It is a simple method of calculation.	28. It is a simple method of calculation.	29. It is a simple method of calculation.	30. It is a simple method of calculation.
31. It is a simple method of calculation.	32. It is a simple method of calculation.	33. It is a simple method of calculation.	34. It is a simple method of calculation.	35. It is a simple method of calculation.	36. It is a simple method of calculation.	37. It is a simple method of calculation.	38. It is a simple method of calculation.	39. It is a simple method of calculation.	40. It is a simple method of calculation.
41. It is a simple method of calculation.	42. It is a simple method of calculation.	43. It is a simple method of calculation.	44. It is a simple method of calculation.	45. It is a simple method of calculation.	46. It is a simple method of calculation.	47. It is a simple method of calculation.	48. It is a simple method of calculation.	49. It is a simple method of calculation.	50. It is a simple method of calculation.

1.2 Demerits of the IRR method

1. It is a simple method of calculation.	2. It is a simple method of calculation.	3. It is a simple method of calculation.	4. It is a simple method of calculation.	5. It is a simple method of calculation.	6. It is a simple method of calculation.	7. It is a simple method of calculation.	8. It is a simple method of calculation.	9. It is a simple method of calculation.	10. It is a simple method of calculation.
11. It is a simple method of calculation.	12. It is a simple method of calculation.	13. It is a simple method of calculation.	14. It is a simple method of calculation.	15. It is a simple method of calculation.	16. It is a simple method of calculation.	17. It is a simple method of calculation.	18. It is a simple method of calculation.	19. It is a simple method of calculation.	20. It is a simple method of calculation.
21. It is a simple method of calculation.	22. It is a simple method of calculation.	23. It is a simple method of calculation.	24. It is a simple method of calculation.	25. It is a simple method of calculation.	26. It is a simple method of calculation.	27. It is a simple method of calculation.	28. It is a simple method of calculation.	29. It is a simple method of calculation.	30. It is a simple method of calculation.
31. It is a simple method of calculation.	32. It is a simple method of calculation.	33. It is a simple method of calculation.	34. It is a simple method of calculation.	35. It is a simple method of calculation.	36. It is a simple method of calculation.	37. It is a simple method of calculation.	38. It is a simple method of calculation.	39. It is a simple method of calculation.	40. It is a simple method of calculation.
41. It is a simple method of calculation.	42. It is a simple method of calculation.	43. It is a simple method of calculation.	44. It is a simple method of calculation.	45. It is a simple method of calculation.	46. It is a simple method of calculation.	47. It is a simple method of calculation.	48. It is a simple method of calculation.	49. It is a simple method of calculation.	50. It is a simple method of calculation.

Potential 25

Accepted for publication 15 July 2004

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and on both

[illegible]

Page 39

where $\alpha = \ln 2$. If the input is a Gaussian vector \mathbf{x} with the spherical distribution, then $\mathbf{y}^T \mathbf{x}$ is a scalar Gaussian random variable with mean 0 and variance σ^2 . Therefore, the probability of error is

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4.8.3 Conflicts between DfP and HRP

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Fig. 1. α -Methyl- β -D-glucopyranoside.

6 Aug 14 1968 Phil Smith

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References

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the present value of a single cash flow is estimated by using the formula

The present value of a single cash flow is estimated by using the formula

$$P = \frac{F}{1 + r}$$

where P = Present value, F = Future value, r = discount rate (or interest rate)

Similarly, the present value of a single cash flow is estimated by using the formula

$$P = \frac{F}{1 + r}$$

$$P = \frac{F}{1 + r}$$

The present value of a single cash flow is estimated by using the formula $P = \frac{F}{1 + r}$

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Summary

The present value of a single cash flow is estimated by using the formula $P = \frac{F}{1 + r}$

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Assignment

Report solutions types questions

1. The function $f(x) = x^2 + 2x + 1$ is defined on the interval $[0, 1]$. Find the maximum and minimum values of $f(x)$ on this interval. The function
2. The function $f(x) = x^3 - 3x^2 + 2x$ is defined on the interval $[-1, 2]$. Find the maximum and minimum values of $f(x)$ on this interval. The function
3. The function $f(x) = x^4 - 4x^3 + 6x^2 - 4x + 1$ is defined on the interval $[0, 1]$. Find the maximum and minimum values of $f(x)$ on this interval. The function
4. The function $f(x) = x^5 - 5x^4 + 10x^3 - 10x^2 + 5x - 1$ is defined on the interval $[0, 1]$. Find the maximum and minimum values of $f(x)$ on this interval. The function
5. The function $f(x) = x^6 - 6x^5 + 15x^4 - 20x^3 + 15x^2 - 6x + 1$ is defined on the interval $[0, 1]$. Find the maximum and minimum values of $f(x)$ on this interval. The function
6. The function $f(x) = x^7 - 7x^6 + 21x^5 - 35x^4 + 35x^3 - 21x^2 + 7x - 1$ is defined on the interval $[0, 1]$. Find the maximum and minimum values of $f(x)$ on this interval. The function
7. The function $f(x) = x^8 - 8x^7 + 28x^6 - 56x^5 + 70x^4 - 56x^3 + 28x^2 - 8x + 1$ is defined on the interval $[0, 1]$. Find the maximum and minimum values of $f(x)$ on this interval. The function
8. The function $f(x) = x^9 - 9x^8 + 36x^7 - 72x^6 + 84x^5 - 72x^4 + 36x^3 - 9x^2 + 9x - 1$ is defined on the interval $[0, 1]$. Find the maximum and minimum values of $f(x)$ on this interval. The function
9. The function $f(x) = x^{10} - 10x^9 + 45x^8 - 120x^7 + 210x^6 - 252x^5 + 210x^4 - 120x^3 + 45x^2 - 10x + 1$ is defined on the interval $[0, 1]$. Find the maximum and minimum values of $f(x)$ on this interval. The function
10. The function $f(x) = x^{11} - 11x^{10} + 55x^9 - 165x^8 + 330x^7 - 462x^6 + 462x^5 - 330x^4 + 165x^3 - 55x^2 + 11x - 1$ is defined on the interval $[0, 1]$. Find the maximum and minimum values of $f(x)$ on this interval. The function
11. The function $f(x) = x^{12} - 12x^{11} + 66x^{10} - 220x^9 + 495x^8 - 792x^7 + 924x^6 - 792x^5 + 495x^4 - 220x^3 + 66x^2 - 12x + 1$ is defined on the interval $[0, 1]$. Find the maximum and minimum values of $f(x)$ on this interval. The function
12. The function $f(x) = x^{13} - 13x^{12} + 78x^{11} - 286x^{10} + 715x^9 - 1287x^8 + 1716x^7 - 1716x^6 + 1287x^5 - 715x^4 + 286x^3 - 78x^2 + 13x - 1$ is defined on the interval $[0, 1]$. Find the maximum and minimum values of $f(x)$ on this interval. The function
13. The function $f(x) = x^{14} - 14x^{13} + 91x^{12} - 364x^{11} + 1001x^{10} - 2002x^9 + 3003x^8 - 3003x^7 + 2002x^6 - 1001x^5 + 364x^4 - 91x^3 + 14x^2 - 14x + 1$ is defined on the interval $[0, 1]$. Find the maximum and minimum values of $f(x)$ on this interval. The function
14. The function $f(x) = x^{15} - 15x^{14} + 105x^{13} - 420x^{12} + 1365x^{11} - 3465x^{10} + 6930x^9 - 10395x^8 + 10395x^7 - 6930x^6 + 3465x^5 - 1365x^4 + 420x^3 - 105x^2 + 15x - 1$ is defined on the interval $[0, 1]$. Find the maximum and minimum values of $f(x)$ on this interval. The function
15. The function $f(x) = x^{16} - 16x^{15} + 120x^{14} - 672x^{13} + 2520x^{12} - 6720x^{11} + 13104x^{10} - 20736x^9 + 20736x^8 - 13104x^7 + 6720x^6 - 2520x^5 + 672x^4 - 120x^3 + 16x^2 - 16x + 1$ is defined on the interval $[0, 1]$. Find the maximum and minimum values of $f(x)$ on this interval. The function
16. The function $f(x) = x^{17} - 17x^{16} + 136x^{15} - 912x^{14} + 4284x^{13} - 14560x^{12} + 35980x^{11} - 75264x^{10} + 128580x^9 - 171600x^8 + 171600x^7 - 128580x^6 + 75264x^5 - 4284x^4 + 912x^3 - 136x^2 + 17x - 1$ is defined on the interval $[0, 1]$. Find the maximum and minimum values of $f(x)$ on this interval. The function
17. The function $f(x) = x^{18} - 18x^{17} + 153x^{16} - 1080x^{15} + 5403x^{14} - 21870x^{13} + 65328x^{12} - 152736x^{11} + 311136x^{10} - 500160x^9 + 500160x^8 - 311136x^7 + 152736x^6 - 65328x^5 + 21870x^4 - 5403x^3 + 1080x^2 - 153x + 1$ is defined on the interval $[0, 1]$. Find the maximum and minimum values of $f(x)$ on this interval. The function
18. The function $f(x) = x^{19} - 19x^{18} + 171x^{17} - 1224x^{16} + 7254x^{15} - 35280x^{14} + 121680x^{13} - 330912x^{12} + 752640x^{11} - 1399680x^{10} + 1399680x^9 - 752640x^8 + 330912x^7 - 121680x^6 + 35280x^5 - 7254x^4 + 1224x^3 - 171x^2 + 19x - 1$ is defined on the interval $[0, 1]$. Find the maximum and minimum values of $f(x)$ on this interval. The function
19. The function $f(x) = x^{20} - 20x^{19} + 190x^{18} - 1530x^{17} + 9684x^{16} - 48620x^{15} + 195840x^{14} - 635040x^{13} + 1679808x^{12} - 3598080x^{11} + 6583040x^{10} - 9879360x^9 + 9879360x^8 - 6583040x^7 + 3598080x^6 - 195840x^5 + 48620x^4 - 9684x^3 + 1530x^2 - 190x + 1$ is defined on the interval $[0, 1]$. Find the maximum and minimum values of $f(x)$ on this interval. The function
20. The function $f(x) = x^{21} - 21x^{20} + 210x^{19} - 1773x^{18} + 11034x^{17} - 60822x^{16} + 298206x^{15} - 1216680x^{14} + 4082400x^{13} - 11034000x^{12} + 23182800x^{11} - 38707200x^{10} + 51905280x^9 - 51905280x^8 + 38707200x^7 - 23182800x^6 + 12166800x^5 - 608220x^4 + 110340x^3 - 17730x^2 + 210x - 1$ is defined on the interval $[0, 1]$. Find the maximum and minimum values of $f(x)$ on this interval. The function
21. The function $f(x) = x^{22} - 22x^{21} + 231x^{20} - 1980x^{19} + 12144x^{18} - 72072x^{17} + 370080x^{16} - 1771320x^{15} + 7264800x^{14} - 24441600x^{13} + 63504000x^{12} - 127008000x^{11} + 190512000x^{10} - 231828000x^9 + 231828000x^8 - 190512000x^7 + 127008000x^6 - 7264800x^5 + 370080x^4 - 177132x^3 + 12144x^2 - 1980x + 1$ is defined on the interval $[0, 1]$. Find the maximum and minimum values of $f(x)$ on this interval. The function
22. The function $f(x) = x^{23} - 23x^{22} + 253x^{21} - 2145x^{20} + 13266x^{19} - 81528x^{18} + 435456x^{17} - 2279520x^{16} + 10864800x^{15} - 43545600x^{14} + 145516800x^{13} - 387072000x^{12} + 858969600x^{11} - 1679808000x^{10} + 2824296000x^9 - 3870720000x^8 + 3870720000x^7 - 2824296000x^6 + 1679808000x^5 - 858969600x^4 + 43545600x^3 - 2279520x^2 + 13266x - 1$ is defined on the interval $[0, 1]$. Find the maximum and minimum values of $f(x)$ on this interval. The function
23. The function $f(x) = x^{24} - 24x^{23} + 276x^{22} - 2431x^{21} + 16248x^{20} - 103680x^{19} + 552768x^{18} - 2824320x^{17} + 13264800x^{16} - 55276800x^{15} + 203212800x^{14} - 635040000x^{13} + 1679808000x^{12} - 3870720000x^{11} + 7526400000x^{10} - 12700800000x^9 + 16798080000x^8 - 16798080000x^7 + 12700800000x^6 - 7526400000x^5 + 3870720000x^4 - 1679808000x^3 + 55276800x^2 - 24310x + 1$ is defined on the interval $[0, 1]$. Find the maximum and minimum values of $f(x)$ on this interval. The function
24. The function $f(x) = x^{25} - 25x^{24} + 300x^{23} - 2700x^{22} + 19800x^{21} - 121680x^{20} + 720720x^{19} - 3700800x^{18} + 17713200x^{17} - 72648000x^{16} + 244416000x^{15} - 726480000x^{14} + 1771320000x^{13} - 3700800000x^{12} + 7207200000x^{11} - 10368000000x^{10} + 12168000000x^9 - 12168000000x^8 + 10368000000x^7 - 7207200000x^6 + 3700800000x^5 - 1771320000x^4 + 726480000x^3 - 270000x^2 + 300x - 1$ is defined on the interval $[0, 1]$. Find the maximum and minimum values of $f(x)$ on this interval. The function
25. The function $f(x) = x^{26} - 26x^{25} + 325x^{24} - 2990x^{23} + 20995x^{22} - 138600x^{21} + 858000x^{20} - 4354560x^{19} + 20321280x^{18} - 85800000x^{17} + 300300000x^{16} - 987936000x^{15} + 2318280000x^{14} - 4354560000x^{13} + 7264800000x^{12} - 10368000000x^{11} + 12168000000x^{10} - 12168000000x^9 + 10368000000x^8 - 7264800000x^7 + 300300000x^6 - 85800000x^5 + 4354560x^4 - 2032128x^3 + 299000x^2 - 325x + 1$ is defined on the interval $[0, 1]$. Find the maximum and minimum values of $f(x)$ on this interval. The function
26. The function $f(x) = x^{27} - 27x^{26} + 351x^{25} - 3213x^{24} + 22782x^{23} - 151200x^{22} + 958320x^{21} - 4791840x^{20} + 22782000x^{19} - 95832000x^{18} + 321300000x^{17} - 958320000x^{16} + 2278200000x^{15} - 4354560000x^{14} + 7264800000x^{13} - 10368000000x^{12} + 12168000000x^{11} - 12168000000x^{10} + 10368000000x^9 - 7264800000x^8 + 321300000x^7 - 95832000x^6 + 4791840x^5 - 22782000x^4 + 151200x^3 - 35100x^2 + 270x - 1$ is defined on the interval $[0, 1]$. Find the maximum and minimum values of $f(x)$ on this interval. The function
27. The function $f(x) = x^{28} - 28x^{27} + 392x^{26} - 3696x^{25} + 26460x^{24} - 174240x^{23} + 1081680x^{22} - 5527680x^{21} + 25276800x^{20} - 103680000x^{19} + 370080000x^{18} - 1103400000x^{17} + 2824296000x^{16} - 6350400000x^{15} + 12700800000x^{14} - 20321280000x^{13} + 28242960000x^{12} - 28242960000x^{11} + 20321280000x^{10} - 12700800000x^9 + 6350400000x^8 - 3700800000x^7 + 1103400000x^6 - 552768000x^5 + 25276800x^4 - 10368000x^3 + 39200x^2 - 39200x + 1$ is defined on the interval $[0, 1]$. Find the maximum and minimum values of $f(x)$ on this interval. The function
28. The function $f(x) = x^{29} - 29x^{28} + 429x^{27} - 4082x^{26} + 29244x^{25} - 194484x^{24} + 1216680x^{23} - 6082200x^{22} + 27007200x^{21} - 103680000x^{20} + 370080000x^{19} - 1103400000x^{18} + 2824296000x^{17} - 6350400000x^{16} + 12700800000x^{15} - 20321280000x^{14} + 28242960000x^{13} - 28242960000x^{12} + 20321280000x^{11} - 12700800000x^{10} + 6350400000x^9 - 3700800000x^8 + 1103400000x^7 - 552768000x^6 + 25276800x^5 - 10368000x^4 + 42900x^3 - 42900x^2 + 290x - 1$ is defined on the interval $[0, 1]$. Find the maximum and minimum values of $f(x)$ on this interval. The function
29. The function $f(x) = x^{30} - 30x^{29} + 465x^{28} - 4395x^{27} + 31530x^{26} - 203490x^{25} + 1216680x^{24} - 6082200x^{23} + 27007200x^{22} - 103680000x^{21} + 370080000x^{20} - 1103400000x^{19} + 2824296000x^{18} - 6350400000x^{17} + 12700800000x^{16} - 20321280000x^{15} + 28242960000x^{14} - 28242960000x^{13} + 20321280000x^{12} - 12700800000x^{11} + 6350400000x^{10} - 3700800000x^9 + 1103400000x^8 - 552768000x^7 + 25276800x^6 - 10368000x^5 + 46500x^4 - 46500x^3 + 300x^2 - 300x + 1$ is defined on the interval $[0, 1]$. Find the maximum and minimum values of $f(x)$ on this interval. The function
30. The function $f(x) = x^{31} - 31x^{30} + 483x^{29} - 4521x^{28} + 32835x^{27} - 212100x^{26} + 1216680x^{25} - 6082200x^{24} + 27007200x^{23} - 103680000x^{22} + 370080000x^{21} - 1103400000x^{20} + 2824296000x^{19} - 6350400000x^{18} + 12700800000x^{17} - 20321280000x^{16} + 28242960000x^{15} - 28242960000x^{14} + 20321280000x^{13} - 12700800000x^{12} + 6350400000x^{11} - 3700800000x^{10} + 1103400000x^9 - 552768000x^8 + 25276800x^7 - 10368000x^6 + 48300x^5 - 48300x^4 + 300x^3 - 300x^2 + 310x - 1$ is defined on the interval $[0, 1]$. Find the maximum and minimum values of $f(x)$ on this interval. The function
31. The function $f(x) = x^{32} - 32x^{31} + 528x^{30} - 4992x^{29} + 35136x^{28} - 229344x^{27} + 1216680x^{26} - 6082200x^{25} + 27007200x^{24} - 103680000x^{23} + 370080000x^{22} - 1103400000x^{21} + 2824296000x^{20} - 6350400000x^{19} + 12700800000x^{18} - 20321280000x^{17} + 28242960000x^{16} - 28242960000x^{15} + 20321280000x^{14} - 12700800000x^{13} + 6350400000x^{12} - 3700800000x^{11} + 1103400000x^{10} - 552768000x^9 + 25276800x^8 - 10368000x^7 + 52800x^6 - 52800x^5 + 310x^4 - 310x^3 + 320x^2 - 320x + 1$ is defined on the interval $[0, 1]$. Find the maximum and minimum values of $f(x)$ on this interval. The function
32. The function $f(x) = x^{33} - 33x^{32} + 594x^{31} - 5643x^{30} + 39930x^{29} - 259920x^{28} + 1216680x^{27} - 6082200x^{26} + 27007200x^{25} - 103680000x^{24} + 370080000x^{23} - 1103400000x^{22} + 2824296000x^{21} - 6350400000x^{20} + 12700800000x^{19} - 20321280000x^{18} + 28242960000x^{17} - 28242960000x^{16} + 20321280000x^{15} - 12700800000x^{14} + 6350400000x^{13} - 3700800000x^{12} + 1103400000x^{11} - 552768000x^{10} + 25276800x^9 - 10368000x^8 + 59400x^7 - 59400x^6 + 320x^5 - 320x^4 + 330x^3 - 330x^2 + 330x - 1$ is defined on the interval $[0, 1]$. Find the maximum and minimum values of $f(x)$ on this interval. The function
33. The function $f(x) = x^{34} - 34x^{33} + 662x^{32} - 6318x^{31} + 42132x^{30} - 274320x^{29} + 1216680x^{28} - 6082200x^{27} + 27007200x^{26} - 103680000x^{25} + 370080000x^{24} - 1103400000x^{23} + 2824296000x^{22} - 6350400000x^{21} + 12700800000x^{20} - 20321280000x^{19} + 28242960000x^{18} - 28242960000x^{17} + 20321280000x^{16} - 12700800000x^{15} + 6350400000x^{14} - 3700800000x^{13} + 1103400000x^{12} - 552768000x^{11} + 25276800x^{10} - 10368000x^9 + 66200x^8 - 66200x^7 + 330x^6 - 330x^5 + 340x^4 - 340x^3 + 340x^2 - 340x + 1$ is defined on the interval $[0, 1]$. Find the maximum and minimum values of $f(x)$ on this interval. The function
34. The function $f(x) = x^{35} - 35x^{34} + 735x^{33} - 7035x^{32} + 46530x^{31} - 297210x^{30} + 1216680x^{29} - 6082200x^{28} + 27007200x^{27} - 103680000x^{26} + 370080000x^{25} - 1103400000x^{24} + 2824296000x^{23} - 6350400000x^{22} + 12700800000x^{21} - 20321280000x^{20} + 28242960000x^{19} - 28242960000x^{18} + 20321280000x^{17} - 12700800000x^{16} + 6350400000x^{15} - 3700800000x^{14} + 1103400000x^{13} - 552768000x^{12} + 25276800x^{11} - 10368000x^{10} + 73500x^9 - 73500x^8 + 340x^7 - 340x^6 + 350x^5 - 350x^4 + 350x^3 - 350x^2 + 350x - 1$ is defined on the interval $[0, 1]$. Find the maximum and minimum values of $f(x)$ on this interval. The function
35. The function $f(x) = x^{36} - 36x^{35} + 810x^{34} - 7740x^{33} + 51480x^{32} - 319320x^{31} + 1216680x^{30} - 6082200x^{29} + 27007200x^{28} - 103680000x^{27} + 370080000x^{26} - 1103400000x^{25} + 2824296000x^{24} - 6350400000x^{23} + 12700800000x^{22} - 20321280000x^{21} + 28242960000x^{20} - 28242960000x^{19} + 20321280000x^{18} - 12700800000x^{17} + 6350400000x^{16} - 3700800000x^{15} + 1103400000x^{14} - 552768000x^{13} + 25276800x^{12} - 10368000x^{11} + 81000x^{10} - 81000x^9 + 350x^8 - 350x^7 + 360x^6 - 360x^5 + 360x^4 - 360x^3 + 360x^2 - 360x + 1$ is defined on the interval $[0, 1]$. Find the maximum and minimum values of $f(x)$ on this interval. The function
36. The function $f(x) = x^{37} - 37x^{36} + 892x^{35} - 8568x^{34} + 56760x^{33} - 349680x^{32} + 1216680x^{31} - 6082200x^{30} + 27007200x^{29} - 103680000x^{28} + 370080000x^{27} - 1103400000x^{26} + 2824296000x^{25} - 6350400000x^{24} + 12700800000x^{23} - 20321280000x^{22} + 28242960000x^{21} - 28242960000x^{20} + 20321280000x^{19} - 12700800000x^{18} + 6350400000x^{17} - 3700800000x^{16} + 1103400000x^{15} - 552768000x^{14} + 25276800x^{13} - 10368000x^{12} + 89200x^{11} - 89200x^{10} + 360x^9 - 360x^8 + 370x^7 - 370x^6 + 370x^5 - 370x^4 + 370x^3 - 370x^2 + 370x - 1$ is defined on the interval $[0, 1]$. Find the maximum and minimum values of $f(x)$ on this interval. The function
37. The function $f(x) = x^{38} - 38x^{37} + 962x^{36} - 9282x^{35} + 60510x^{34} - 375180x^{33} + 1216680x^{32} - 6082200x^{31} + 27007200x^{30} - 103680000x^{29} + 370080000x^{28} - 1103400000x^{27} + 2824296000x^{26} - 6350400000x^{25} + 12700800000x^{24} - 20321280000x^{23} + 28242960000x^{22} - 28242960000x^{21} + 20321280000x^{20} - 12700800000x^{19} + 6350400000x^{18} - 3700800000x^{17} + 1103400000x^{16} - 552768000x^{15} + 25276800x^{14} - 10368000x^{13} + 96200x^{12} - 96200x^{11} + 370x^{10} - 370x^9 + 380x^8 - 380x^7 + 380x^6 - 380x^5 + 380x^4 - 380x^3 + 380x^2 - 380x + 1$ is defined on the interval $[0, 1]$. Find the maximum and minimum values of $f(x)$ on this interval. The function
38. The function $f(x) = x^{39} - 39x^{38} + 1026x^{37} - 9918x^{36} + 64620x^{35} - 399960x^{34} + 1216680x^{33} - 6082200x^{32} + 27007200x^{31} - 103680000x^{30} + 370080000x^{29} - 1103400000x^{28} + 2824296000x^{27} - 6350400000x^{26} + 12700800000x^{25} - 20321280000x^{24} + 28242960000x^{23} - 28242960000x^{22} + 20321280000x^{21} - 12700800000x^{20} + 6350400000x^{19} - 3700800000x^{18} + 1103400000x^{17} - 552768000x^{16} + 25276800x^{15} - 10368000x^{14} + 102600x^{13} - 102600x^{12} + 380x^{11} - 380x^{10} + 390x^9 - 390x^8 + 390x^7 - 390x^6 + 390x^5 - 390x^4 + 390x^3 - 390x^2 + 390x - 1$ is defined on the interval $[0, 1]$. Find the maximum and minimum values of $f(x)$ on this interval. The function
39. The function $f(x) = x^{40} - 40x^{39} + 1120x^{38} - 10880x^{37} + 70720x^{36} - 429440x^{35} + 1216680x^{34} - 6082200x^{33} + 27007200x^{32} - 103680000x^{31} + 370080000x^{30} - 1103400000x^{29} + 2824296000x^{28} - 6350400000x^{27} + 12700800000x^{26} - 20321280000x^{25} + 28242960000x^{24} - 28242960000x^{23} + 20321280000x^{22} - 12700800000x^{21} + 6350400000x^{20} - 3700800$

1. The first part of the problem is to find the value of x which satisfies the equation $x^2 + 2x - 3 = 0$. This is a quadratic equation, and we can solve it by factoring. We look for two numbers that multiply to -3 and add to 2 . These numbers are 3 and -1 . Therefore, the equation can be factored as $(x+3)(x-1) = 0$. This gives us two possible solutions: $x = -3$ or $x = 1$.

2. The second part of the problem is to find the value of y which satisfies the equation $y^2 - 4y + 4 = 0$. This is also a quadratic equation, and we can solve it by factoring. We look for two numbers that multiply to 4 and add to -4 . These numbers are -2 and -2 . Therefore, the equation can be factored as $(y-2)(y-2) = 0$. This gives us one possible solution: $y = 2$.

Year	Population (in millions)
1950	2.5
1960	3.0
1970	3.7
1980	4.4
1990	5.3
2000	6.1
2010	7.0
2020	7.8

The data shows a steady increase in population over the years. The population was 2.5 million in 1950 and is projected to reach 7.8 million by 2020. This represents a growth of 212% over the 70-year period.

3. The third part of the problem is to find the value of z which satisfies the equation $z^2 + 5z + 6 = 0$. This is a quadratic equation, and we can solve it by factoring. We look for two numbers that multiply to 6 and add to 5 . These numbers are 2 and 3 . Therefore, the equation can be factored as $(z+2)(z+3) = 0$. This gives us two possible solutions: $z = -2$ or $z = -3$.

4. The fourth part of the problem is to find the value of w which satisfies the equation $w^2 - 9w + 14 = 0$. This is also a quadratic equation, and we can solve it by factoring. We look for two numbers that multiply to 14 and add to -9 . These numbers are -2 and -7 . Therefore, the equation can be factored as $(w-2)(w-7) = 0$. This gives us two possible solutions: $w = 2$ or $w = 7$.

Year	Population (in millions)
1950	2.5
1960	3.0
1970	3.7
1980	4.4
1990	5.3
2000	6.1
2010	7.0
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The data shows a steady increase in population over the years. The population was 2.5 million in 1950 and is projected to reach 7.8 million by 2020. This represents a growth of 212% over the 70-year period.



Hand Picked Yield Rate Join Structure

46 *Journal of Maritime Law and Commerce*

7.1 Honda Motor Concept

2.2 + Mean features of = board

1. The first part of the document is a list of names and addresses, which appears to be a directory or a list of contacts. The names are written in a cursive script, and the addresses are listed below them.

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Product Information Type

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The above-mentioned photographs reflect the fact that the subject was in the vicinity of the building on the date of the fire. The fact that the subject was in the vicinity of the building on the date of the fire is further supported by the fact that the subject was seen by the witness on the date of the fire. The fact that the subject was seen by the witness on the date of the fire is further supported by the fact that the subject was seen by the witness on the date of the fire.

(4) Finally, our second finding, which supports our second hypothesis, is that the link between the two variables is not as strong as it is in the case of the first finding. This is because, in the case of the first finding, the link between the two variables is very strong, as indicated by the high correlation coefficient. In the case of the second finding, the link between the two variables is much weaker, as indicated by the lower correlation coefficient. This is because, in the case of the second finding, the link between the two variables is not as strong as it is in the case of the first finding. This is because, in the case of the second finding, the link between the two variables is much weaker, as indicated by the lower correlation coefficient.

2.1.1.1. Yield to Maturity

The yield to maturity (YTM) is the rate of return earned on a bond if it is held to maturity. It is the rate that equates the present value of the bond's cash flows to its current market price.

YTM is a measure of the return on a bond, and it is the rate that equates the present value of the bond's cash flows to its current market price. It is the rate that equates the present value of the bond's cash flows to its current market price.

2.1.1.2. Duration

Duration is a measure of the time it takes for the present value of a bond's cash flows to equal the bond's current market price. It is a weighted average of the times to maturity of the bond's cash flows, with the weights being the present value of each cash flow.

2.1.1.3. Bond Price and Yield

The bond price and yield are inversely related. When the yield increases, the bond price decreases, and vice versa. This is because the present value of the bond's cash flows decreases as the discount rate (yield) increases.

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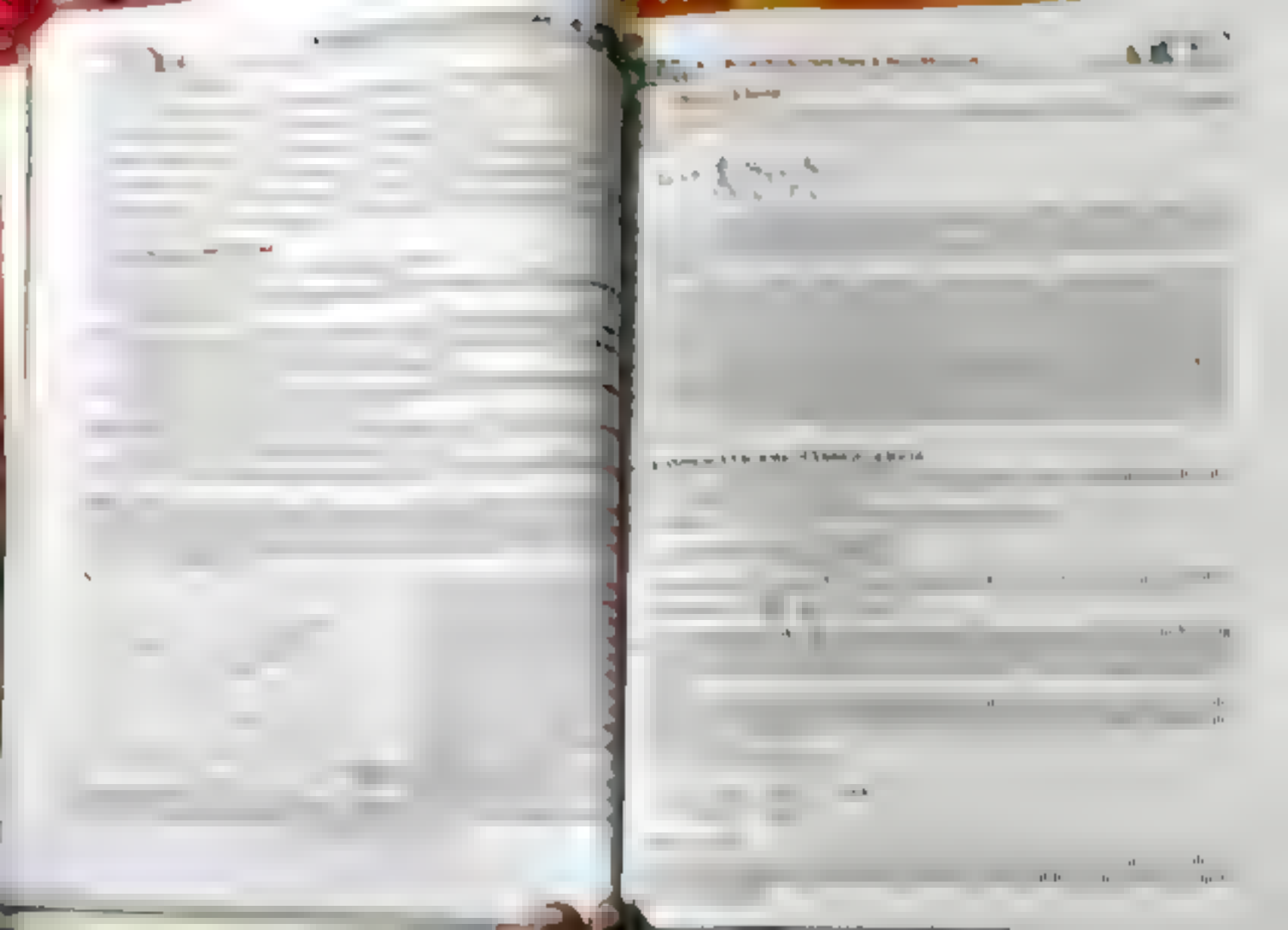
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Major Party Name: _____

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3 Bond Price Theorem

$$P(t, T) = \mathbb{E}_t \left[\exp \left(- \int_t^T r_s ds \right) \right]$$

- 1. $P(t, T)$ is the price at time t of a zero coupon bond maturing at time T .
- 2. $P(t, T)$ is a decreasing function of T .
- 3. $P(t, T)$ is a decreasing function of t .
- 4. $P(t, T)$ is a decreasing function of r_t .
- 5. $P(t, T)$ is a decreasing function of r_s for $s > t$.

Corollary

If the yield curve is upward sloping, then the price of a zero coupon bond is a decreasing function of its maturity.

Time	Yield	Price	Remarks
0	5%	100	
1	6%	95	
2	7%	90	
3	8%	85	

Example 1.10

Suppose the yield curve is upward sloping. Then the price of a zero coupon bond is a decreasing function of its maturity.

Let $P(t, T)$ be the price at time t of a zero coupon bond maturing at time T . Then $P(t, T)$ is a decreasing function of T .

and therefore

the yield rate y is the rate at which the present value of the cash flows of the bond equals the price of the bond.

Example 2

A bond with a face value of 100 is purchased at a price of 95. The bond has a coupon rate of 5% and matures in 10 years. The yield rate is 6%. Calculate the price of the bond.

$$P = \frac{C}{y} \left(1 - \frac{1}{(1+y)^n} \right) + \frac{F}{(1+y)^n}$$

where P is the price of the bond, C is the coupon payment, F is the face value, y is the yield rate, and n is the number of periods.

Substituting the values:

$P = \frac{5}{0.06} \left(1 - \frac{1}{(1+0.06)^{10}} \right) + \frac{100}{(1+0.06)^{10}}$

Calculating the price of the bond:

$P = 95.19$

Therefore, the price of the bond is 95.19.

Thus, the discount amount falls by £1.23 (= £7.23 - £6.00), which is 1.23% of the par value.

Since the yield rate is 6%, the discount amount is 1.23% of the par value.

Therefore, the discount amount is 1.23% of the par value.

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Since the yield rate is 6%, the discount amount is 1.23% of the par value.

Therefore, the discount amount is 1.23% of the par value.

In Fig. 1, the yield rate is 6% and the discount amount is 1.23% of the par value. The discount amount is 1.23% of the par value.

Therefore, the discount amount is 1.23% of the par value.

Since the yield rate is 6%, the discount amount is 1.23% of the par value.

Therefore, the discount amount is 1.23% of the par value.

1.4. Example 1.1
 Let $P(t, T)$ be the price of a zero-coupon bond maturing at T and let $r(t)$ be the short rate at time t . Then the bond price satisfies the following partial differential equation:

$$\frac{\partial P}{\partial t} + \frac{1}{2} \sigma^2 P^2 + rP = 0$$

Example 1.2
 Let $P(t, T)$ be the price of a zero-coupon bond maturing at T and let $r(t)$ be the short rate at time t . Then the bond price satisfies the following partial differential equation:

	Bond-1	Bond-2
Face Value	100	100
Maturity	1 year	2 years
Yield Rate	5%	5%
Price at $t=0$	95.12	90.48

Example 1.3
 Let $P(t, T)$ be the price of a zero-coupon bond maturing at T and let $r(t)$ be the short rate at time t . Then the bond price satisfies the following partial differential equation:

$$\frac{\partial P}{\partial t} + \frac{1}{2} \sigma^2 P^2 + rP = 0$$

Example 1.4
 Let $P(t, T)$ be the price of a zero-coupon bond maturing at T and let $r(t)$ be the short rate at time t . Then the bond price satisfies the following partial differential equation:

$$\frac{\partial P}{\partial t} + \frac{1}{2} \sigma^2 P^2 + rP = 0$$

Example 1.5
 Let $P(t, T)$ be the price of a zero-coupon bond maturing at T and let $r(t)$ be the short rate at time t . Then the bond price satisfies the following partial differential equation:

$$\frac{\partial P}{\partial t} + \frac{1}{2} \sigma^2 P^2 + rP = 0$$

Example 1.6
 Let $P(t, T)$ be the price of a zero-coupon bond maturing at T and let $r(t)$ be the short rate at time t . Then the bond price satisfies the following partial differential equation:

$$\frac{\partial P}{\partial t} + \frac{1}{2} \sigma^2 P^2 + rP = 0$$

Example 1.7
 Let $P(t, T)$ be the price of a zero-coupon bond maturing at T and let $r(t)$ be the short rate at time t . Then the bond price satisfies the following partial differential equation:

$$\frac{\partial P}{\partial t} + \frac{1}{2} \sigma^2 P^2 + rP = 0$$

Example 1.8
 Let $P(t, T)$ be the price of a zero-coupon bond maturing at T and let $r(t)$ be the short rate at time t . Then the bond price satisfies the following partial differential equation:

$$\frac{\partial P}{\partial t} + \frac{1}{2} \sigma^2 P^2 + rP = 0$$

Example 1.9
 Let $P(t, T)$ be the price of a zero-coupon bond maturing at T and let $r(t)$ be the short rate at time t . Then the bond price satisfies the following partial differential equation:

$$\frac{\partial P}{\partial t} + \frac{1}{2} \sigma^2 P^2 + rP = 0$$

2.1 Convexity in bond valuation

The first two parts of the question are straightforward. The first part of the question is about the relationship between the yield to maturity and the price of a bond. The second part is about the relationship between the yield to maturity and the duration of a bond.

Table 2.4

Bond	Yield to Maturity	Duration	Price	Convexity
Bond 1	5%	1.5	100	1.5
Bond 2	5%	2.5	100	2.5
Bond 3	5%	3.5	100	3.5
Bond 4	5%	4.5	100	4.5

The table shows the relationship between the yield to maturity, the duration, the price, and the convexity of four bonds. The duration of the bonds increases linearly with the yield to maturity, while the price and convexity increase non-linearly.

Q.1

1. The first part of the question is about the relationship between the yield to maturity and the price of a bond. The second part is about the relationship between the yield to maturity and the duration of a bond.
2. The first part of the question is about the relationship between the yield to maturity and the price of a bond. The second part is about the relationship between the yield to maturity and the duration of a bond.

$$A = \frac{1}{1 + y}$$

where y is the yield to maturity.

The second part of the question is about the relationship between the yield to maturity and the duration of a bond.

$$D = \frac{1}{1 + y}$$

where y is the yield to maturity.

$$P = \frac{1}{1 + y}$$

where y is the yield to maturity.

$$C = \frac{1}{1 + y}$$

where y is the yield to maturity.

$$C = \frac{1}{1 + y}$$

where y is the yield to maturity.

The third part of the question is about the relationship between the yield to maturity and the duration of a bond.

$$D = \frac{1}{1 + y}$$

where y is the yield to maturity.

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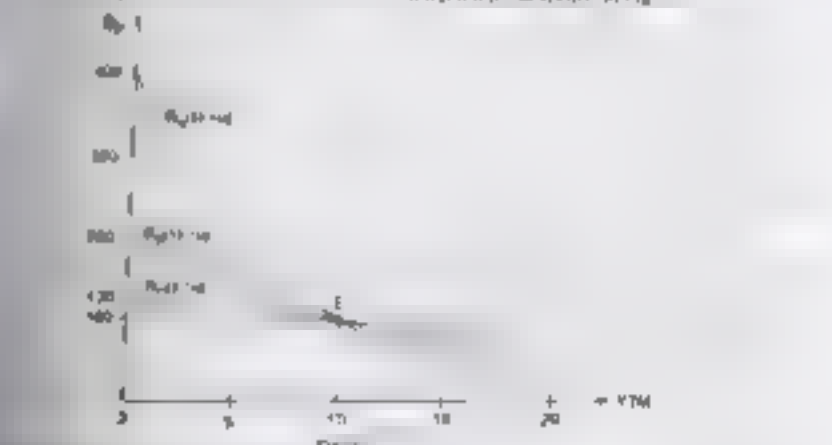
$$D = \frac{1}{1 + y}$$

where y is the yield to maturity.

Example 10.1: Calculating the price of a bond. A bond with a face value of \$1000, a coupon rate of 5%, and a maturity of 10 years is currently trading at a price of \$950. What is the yield to maturity?

Solution: The bond's price is \$950, its face value is \$1000, and its coupon rate is 5%. The yield to maturity is the interest rate that makes the present value of the bond's cash flows equal to its price. The cash flows are the annual coupon payments of \$50 and the face value of \$1000 at maturity. The yield to maturity is the interest rate that makes the present value of these cash flows equal to \$950. The yield to maturity is 5.5%.

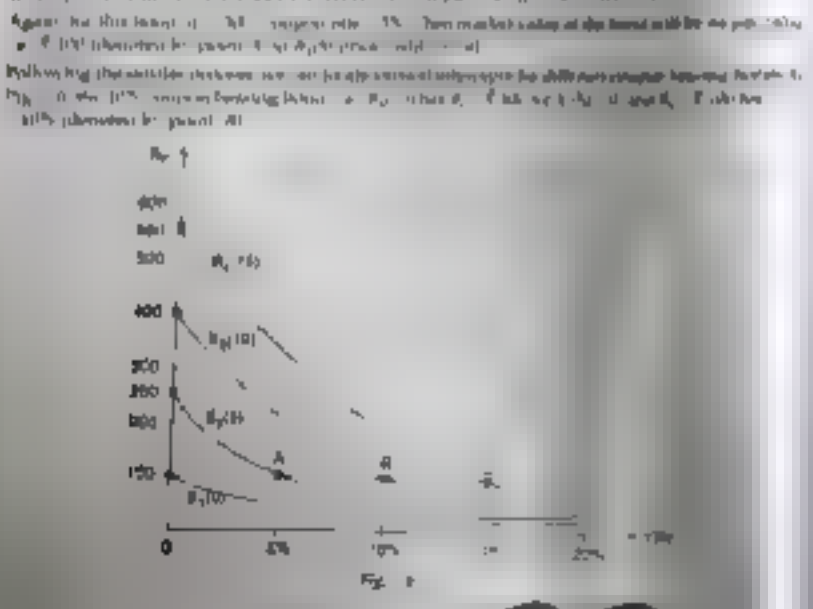
Example 10.2: Calculating the price of a bond. A bond with a face value of \$1000, a coupon rate of 5%, and a maturity of 10 years is currently trading at a price of \$950. What is the yield to maturity?



2.1.1 Interest rate risk and price-yield curve
The slope of the price-yield curve also shows the interest rate risk associated with a bond. The slope is negative, indicating that when the yield to maturity increases, the price of the bond decreases. The slope is steeper for bonds with longer maturities. For a 1% change in the YTM, the change in the price of a bond with a 10-year maturity is larger than the change in the price of a bond with a 5-year maturity.

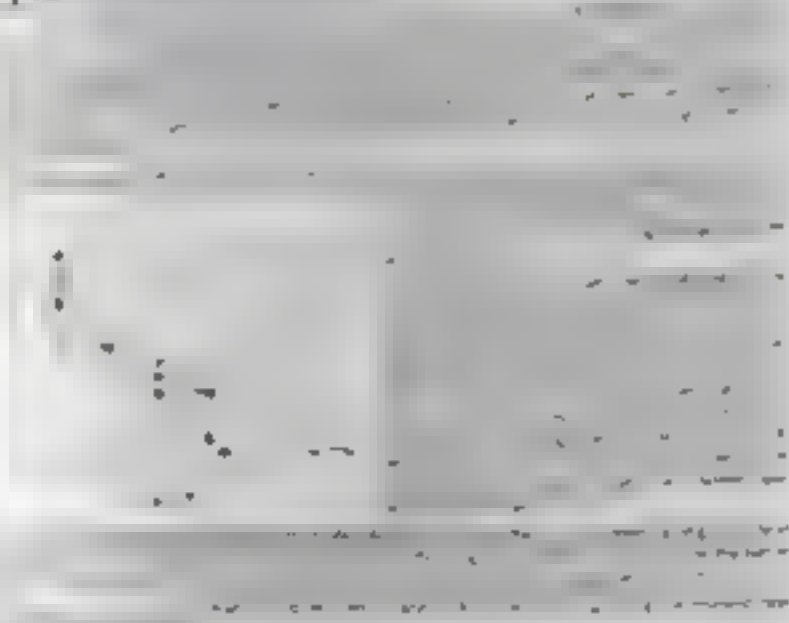
Year	1	2	3	4	5	6	7	8	9	10
Price	950	950	950	950	950	950	950	950	950	950
Yield	5.5%	5.5%	5.5%	5.5%	5.5%	5.5%	5.5%	5.5%	5.5%	5.5%
Face Value	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
Coupon Rate	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%
Coupon Payment	50	50	50	50	50	50	50	50	50	50
Yield to Maturity	5.5%	5.5%	5.5%	5.5%	5.5%	5.5%	5.5%	5.5%	5.5%	5.5%

Example 10.3: Calculating the price of a bond. A bond with a face value of \$1000, a coupon rate of 5%, and a maturity of 10 years is currently trading at a price of \$950. What is the yield to maturity?



to get the most useful results

1. interest rate sensitivity of the bond price



2. interest rate sensitivity and duration

The duration of a bond is a measure of the bond's sensitivity to changes in interest rates. It is the weighted average of the times to receive the bond's cash flows. The longer the duration, the more sensitive the bond's price is to changes in interest rates.

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Example 2.11

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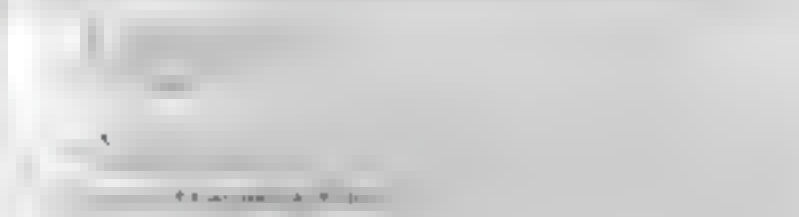
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Station	Time	Temp	Wind	Clouds	Notes
1	08:00	15°C	10 km/h	10%	Clear sky
2	09:00	18°C	12 km/h	15%	Light breeze
3	10:00	20°C	15 km/h	20%	Increasing cloud cover
4	11:00	22°C	18 km/h	30%	Clouds building
5	12:00	24°C	20 km/h	40%	Thunder possible
6	13:00	25°C	22 km/h	50%	Thunder started
7	14:00	23°C	20 km/h	40%	Thunder stopped
8	15:00	21°C	18 km/h	30%	Clearing up
9	16:00	19°C	15 km/h	20%	Light rain
10	17:00	17°C	12 km/h	10%	End of rain

Station 1: 100m elevation (100m)

Time: 08:00 - 17:00



Notes: The path starts at point 1 (100m) and ends at point 10 (100m). The elevation changes are as follows:

$$\Delta \text{Elevation} = \text{Elevation}_{\text{end}} - \text{Elevation}_{\text{start}} = 100\text{m} - 100\text{m} = 0\text{m}$$

The total distance traveled is 1000m.

Station	Time	Temp	Wind	Clouds	Notes
1	08:00	15°C	10 km/h	10%	Clear sky
2	09:00	18°C	12 km/h	15%	Light breeze
3	10:00	20°C	15 km/h	20%	Increasing cloud cover
4	11:00	22°C	18 km/h	30%	Clouds building
5	12:00	24°C	20 km/h	40%	Thunder possible
6	13:00	25°C	22 km/h	50%	Thunder started
7	14:00	23°C	20 km/h	40%	Thunder stopped
8	15:00	21°C	18 km/h	30%	Clearing up
9	16:00	19°C	15 km/h	20%	Light rain
10	17:00	17°C	12 km/h	10%	End of rain

Date: _____

Chem 101: General Chemistry

Section: _____

Topic: _____

Section: _____

Section: _____

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Value		Price		Yield		Rate	
1	2	3	4	5	6	7	8
1	100	100	100	100	100	100	100
2	100	100	100	100	100	100	100
3	100	100	100	100	100	100	100
4	100	100	100	100	100	100	100
5	100	100	100	100	100	100	100
6	100	100	100	100	100	100	100
7	100	100	100	100	100	100	100
8	100	100	100	100	100	100	100
9	100	100	100	100	100	100	100
10	100	100	100	100	100	100	100

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3. Band Pass, Band Stop & Notch Structure

3.1 Properties of Bandpass

1. The magnitude response of a bandpass filter is unity in the passband and zero in the stopbands.

2. The phase response of a bandpass filter is linear in the passband and nonlinear in the stopbands.

3. The group delay of a bandpass filter is constant in the passband and varies in the stopbands.

4. The passband of a bandpass filter is centered at the center frequency f_c .

5. The stopbands of a bandpass filter are symmetric about the center frequency f_c .

6. The roll-off rate of a bandpass filter is determined by the order of the filter.

7. The insertion loss of a bandpass filter is the loss in signal power due to the filter's internal losses.

8. The return loss of a bandpass filter is the loss in signal power due to the filter's reflection coefficient.

9. The isolation of a bandpass filter is the loss in signal power due to the filter's crosstalk.

10. The spurious response of a bandpass filter is the unwanted signal components that appear in the passband.

Example 1.1

Band	Band 1	Band 2
Center Frequency	100 MHz	200 MHz
Bandwidth	10 MHz	20 MHz
Stopband Attenuation	40 dB	60 dB

Table 1.1: Bandpass Filter Specifications

Band	Band 1	Band 2	Band 3
Center Frequency	100 MHz	200 MHz	300 MHz
Bandwidth	10 MHz	20 MHz	30 MHz
Stopband Attenuation	40 dB	60 dB	80 dB
Passband Ripple	0.1 dB	0.2 dB	0.3 dB
Group Delay	10 ns	20 ns	30 ns

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1. The amount of a product is determined by the amount of inputs used.

2. The amount of a product is determined by the amount of inputs used.

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4. The amount of a product is determined by the amount of inputs used.

Short-Run, Total Cost & Total Revenue

Short-Run - a period with at least one input is fixed. The output will be higher if the variable input is increased. The total cost is the sum of the fixed cost and the variable cost. The total revenue is the price of the output multiplied by the quantity of output.

Example 1

Low Fixed Cost				High Fixed Cost			
Q	VC	TC	TR	Q	VC	TC	TR
0	0	10	0	0	0	20	0
1	5	15	10	1	5	25	10
2	10	20	20	2	10	30	20
3	15	25	30	3	15	35	30
4	20	30	40	4	20	40	40

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Short-Run - a period with at least one input is fixed. The output will be higher if the variable input is increased. The total cost is the sum of the fixed cost and the variable cost. The total revenue is the price of the output multiplied by the quantity of output.

Example 2

Q	VC	TC	TR
0	0	10	0
1	5	15	10
2	10	20	20
3	15	25	30
4	20	30	40

Short-Run - a period with at least one input is fixed. The output will be higher if the variable input is increased. The total cost is the sum of the fixed cost and the variable cost. The total revenue is the price of the output multiplied by the quantity of output.

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100

1. The first step is to identify the problem or question that needs to be answered. This involves understanding the context and the specific requirements of the task.

1. *Goal* of the *Learning* process is to find a *Policy* that maximizes the *Expected Return* of the *Policy*.

[illegible][illegible]

\mathbb{Z}_m

Now, $700 = 2^3 \cdot 5^2 \cdot 7$ and the two integers a and b would be $a = 2^3 \cdot 5^2 = 100$ and $b = 7$. Thus

1. The Board of Directors shall have the authority to issue bonds of the Corporation in such amounts and for such terms and conditions as it may deem proper, and to execute all necessary documents in connection with the issuance of such bonds.

1. The First Steps in the Learning

The first step in the learning process is to identify the problem. This involves a clear understanding of the situation and the goals that need to be achieved. Once the problem is identified, the next step is to gather information. This can be done through research, observation, and consultation with others. The third step is to analyze the information and develop a plan of action. This plan should be realistic and achievable, and it should take into account the resources available. The final step is to implement the plan and evaluate the results. This involves monitoring progress and making adjustments as needed.

Once the plan is implemented, it is important to evaluate the results. This can be done by comparing the actual results with the expected results. If the results are not as expected, it may be necessary to revise the plan. The evaluation process should be ongoing, as the situation may change over time. The final step in the learning process is to reflect on the experience. This involves thinking about what was learned and how it can be applied to future situations.

Reflection is an important part of the learning process. It allows us to learn from our experiences and to improve our performance. By reflecting on our successes and failures, we can identify the factors that led to those outcomes. This information can then be used to make changes to our behavior and to our plans. Reflection is a continuous process, and it is essential for ongoing learning and growth.

The first step in the learning process is to identify the problem. This involves a clear understanding of the situation and the goals that need to be achieved. Once the problem is identified, the next step is to gather information. This can be done through research, observation, and consultation with others. The third step is to analyze the information and develop a plan of action. This plan should be realistic and achievable, and it should take into account the resources available. The final step is to implement the plan and evaluate the results. This involves monitoring progress and making adjustments as needed.

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Abstract *Group Theory Notes* by James Beckett

$\gamma_{\text{eff}} = \frac{\mu_0}{\mu} \left(\frac{r}{R} \right)^2$

[illegible]

q (x10 ¹⁶ m ⁻³)	α ₁ (%)	α ₂ (%)	α ₃ (%)
0.0	0.0	0.0	0.0
0.1	0.1	0.1	0.1
0.2	0.2	0.2	0.2
0.3	0.3	0.3	0.3
0.4	0.4	0.4	0.4
0.5	0.5	0.5	0.5
0.6	0.6	0.6	0.6
0.7	0.7	0.7	0.7
0.8	0.8	0.8	0.8
0.9	0.9	0.9	0.9
1.0	1.0	1.0	1.0

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11. $\frac{1}{2} \log 2 = \frac{1}{2} \log 2$

Problem 9 (ICM) The peak rate and the speed rate of treatment are given by $\frac{dI}{dt}$ and $\frac{dR}{dt}$, respectively. The speed rate of recovery is given by $\frac{dR}{dt}$. The total number of individuals is given by $N = I + R + S$.

Example with generalized grid cells are shown below

Table 11.2

id	Independent variable	Dependent variable	Significance level
1	1	1	1
2	2	2	2
3	3	3	3
4	4	4	4
5	5	5	5
6	6	6	6
7	7	7	7
8	8	8	8
9	9	9	9
10	10	10	10
11	11	11	11
12	12	12	12
13	13	13	13
14	14	14	14
15	15	15	15
16	16	16	16
17	17	17	17
18	18	18	18
19	19	19	19
20	20	20	20
21	21	21	21
22	22	22	22
23	23	23	23
24	24	24	24
25	25	25	25
26	26	26	26
27	27	27	27
28	28	28	28
29	29	29	29
30	30	30	30
31	31	31	31
32	32	32	32
33	33	33	33
34	34	34	34
35	35	35	35
36	36	36	36
37	37	37	37
38	38	38	38
39	39	39	39
40	40	40	40
41	41	41	41
42	42	42	42
43	43	43	43
44	44	44	44
45	45	45	45
46	46	46	46
47	47	47	47
48	48	48	48
49	49	49	49
50	50	50	50
51	51	51	51
52	52	52	52
53	53	53	53
54	54	54	54
55	55	55	55
56	56	56	56
57	57	57	57
58	58	58	58
59	59	59	59
60	60	60	60
61	61	61	61
62	62	62	62
63	63	63	63
64	64	64	64
65	65	65	65
66	66	66	66
67	67	67	67
68	68	68	68
69	69	69	69
70	70	70	70
71	71	71	71
72	72	72	72
73	73	73	73
74	74	74	74
75	75	75	75
76	76	76	76
77	77	77	77
78	78	78	78
79	79	79	79
80	80	80	80
81	81	81	81
82	82	82	82
83	83	83	83
84	84	84	84
85	85	85	85
86	86	86	86
87	87	87	87
88	88	88	88
89	89	89	89
90	90	90	90
91	91	91	91
92	92	92	92
93	93	93	93
94	94	94	94
95	95	95	95
96	96	96	96
97	97	97	97
98	98	98	98
99	99	99	99
100	100	100	100

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$$\frac{f}{\Delta t} = \text{Galv}$$

1. What is the purpose of the document?
 2. What are the main points of the document?
 3. What are the main points of the document?
 4. What are the main points of the document?
 5. What are the main points of the document?
 6. What are the main points of the document?
 7. What are the main points of the document?
 8. What are the main points of the document?
 9. What are the main points of the document?
 10. What are the main points of the document?

Method of determining the position of a point

Fig. 1

Fig. 2

Fig. 3

Fig. 4

Fig. 5

Fig. 6

Fig. 7

Fig. 8

Fig. 9

Fig. 10		Fig. 11	
1	2	3	4
5	6	7	8
9	10	11	12
13	14	15	16
17	18	19	20

Fig. 12

Fig. 13

Fig. 14

Fig. 15

Fig. 16

Fig. 17

Fig. 18

Fig. 19

1. The first step is to identify the problem.

2. The second step is to define the problem. This involves identifying the specific aspects of the problem that need to be addressed. For example, if the problem is "low sales", the specific aspects might be "low sales volume", "low sales price", or "low sales frequency".

3. The third step is to analyze the problem. This involves identifying the causes of the problem and the factors that are contributing to it. For example, if the problem is "low sales", the causes might be "lack of marketing", "poor timing", or "competition".

4. The fourth step is to develop a solution. This involves identifying the actions that need to be taken to address the problem. For example, if the problem is "low sales", the solution might be to increase marketing, improve timing, or differentiate the product from competitors.

5. The fifth step is to implement the solution. This involves putting the solution into action and monitoring the results. For example, if the solution is to increase marketing, the implementation might involve running a series of advertisements.

6. The sixth step is to evaluate the results. This involves assessing the effectiveness of the solution and identifying any areas for improvement. For example, if the solution is to increase marketing, the evaluation might involve tracking sales volume and sales price.

7. The seventh step is to adjust the solution. This involves making any necessary changes to the solution based on the results of the evaluation. For example, if the solution is to increase marketing, the adjustment might involve changing the timing or the content of the advertisements.

8. The eighth step is to monitor the results. This involves continuing to track the results of the solution and making any necessary adjustments. For example, if the solution is to increase marketing, the monitoring might involve tracking sales volume and sales price over time.

9. The ninth step is to report the results. This involves communicating the results of the solution to the relevant stakeholders. For example, if the solution is to increase marketing, the reporting might involve presenting the results to the marketing department.

■ Generalised rule

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It shows to which period corresponding weights a zero coupon bond is assigned.

■ Bond price

First we suppose that the bond is a zero coupon bond.

Let $P(t, T)$ be the price of a zero coupon bond at time t with maturity T . The bond pays a unit of currency at T . The price of the bond at time t is given by

and the yield rate $y(t, T)$ is defined by the equation

$$P(t, T) = \frac{1}{(1 + y(t, T))^{T-t}}$$

where $y(t, T)$ is the yield rate at time t for a zero coupon bond with maturity T . The yield rate is a function of time t and maturity T .

3.2 Theories related to Term Structures

The term structure of interest rates is the relationship between the yield rate and the maturity of the bond. The term structure is a function of time t .

The term structure is a function of time t and maturity T .

The term structure is a function of time t and maturity T .

The term structure is a function of time t and maturity T .

The term structure is a function of time t and maturity T .

3.3 The expectation theory

The expectation theory states that the yield rate is the expected value of the future yield rate. The yield rate is a function of time t and maturity T .

The yield rate is a function of time t and maturity T . The yield rate is a function of time t and maturity T .

The yield rate is a function of time t and maturity T . The yield rate is a function of time t and maturity T .

The yield rate is a function of time t and maturity T . The yield rate is a function of time t and maturity T .

The yield rate is a function of time t and maturity T . The yield rate is a function of time t and maturity T .

The yield rate is a function of time t and maturity T . The yield rate is a function of time t and maturity T .

and the money borrowed for 3 years at your bank, now

the money borrowed for 7 years, starting from the next year

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Weakly Efficient Frontier

Let S be a set of risky assets. The weakly efficient frontier of S is the set of portfolios of S that are not dominated by any other portfolio of S . In other words, a portfolio P is weakly efficient if there is no other portfolio Q such that $E[R_Q] \geq E[R_P]$ and $\text{Var}[R_Q] \leq \text{Var}[R_P]$, with at least one inequality being strict.

The weakly efficient frontier is a subset of the efficient frontier. The efficient frontier is the set of portfolios of S that are not dominated by any other portfolio of S in the sense that there is no other portfolio Q such that $E[R_Q] \geq E[R_P]$ and $\text{Var}[R_Q] < \text{Var}[R_P]$.

The weakly efficient frontier is a convex set. The efficient frontier is also a convex set.

2.0.3. Equally Weighted Portfolio

Let S be a set of risky assets. The equally weighted portfolio of S is the portfolio in which each asset in S is held in equal proportion. If S contains N assets, then the equally weighted portfolio is the portfolio in which each asset is held in proportion $1/N$.

The equally weighted portfolio is a portfolio of S . It is a portfolio of S because it is a linear combination of the assets in S .

3.0. Bond Pricing, Yield Rates, & Term Structure

Let t be a time period. The price of a bond that matures at time T and has a face value of F is the present value of the bond's cash flows. The cash flows of the bond are the coupon payments and the face value. The coupon payments are made at regular intervals, and the face value is paid at maturity.

The yield rate of a bond is the interest rate that makes the present value of the bond's cash flows equal to its price. The yield rate is a measure of the return on the bond.

The term structure of interest rates is the relationship between the yield rate and the time to maturity of a bond. The term structure is a curve that shows how the yield rate changes with the time to maturity.

$$P(t, T) = \frac{F}{(1 + y(t, T))^T}$$

where $P(t, T)$ is the price of the bond at time t and $y(t, T)$ is the yield rate.

$$y(t, T) = \frac{1}{T} \ln \left(\frac{F}{P(t, T)} \right)$$

The yield rate is a function of the time to maturity. The yield rate is a measure of the return on the bond. The yield rate is a function of the time to maturity.

The yield rate is a function of the time to maturity.

The yield rate is a function of the time to maturity. The yield rate is a measure of the return on the bond. The yield rate is a function of the time to maturity.

For a definition of psychology, see the following:

Psychology is the scientific study of behavior and the mind.

It is a branch of science that deals with the study of the mind and behavior.

Psychology is the study of the mind and behavior.

It is a branch of science that deals with the study of the mind and behavior.

Psychology is the study of the mind and behavior.

1.1 The Scientific Study of Psychology

Psychology is the scientific study of behavior and the mind. It is a branch of science that deals with the study of the mind and behavior. Psychology is the study of the mind and behavior. It is a branch of science that deals with the study of the mind and behavior.

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$\frac{1}{2} \left(\frac{1}{2} \right) = \frac{1}{4}$

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11		11

11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100 101 102 103 104 105 106 107 108 109 110 111 112 113 114 115 116 117 118 119 120 121 122 123 124 125 126 127 128 129 130 131 132 133 134 135 136 137 138 139 140 141 142 143 144 145 146 147 148 149 150 151 152 153 154 155 156 157 158 159 160 161 162 163 164 165 166 167 168 169 170 171 172 173 174 175 176 177 178 179 180 181 182 183 184 185 186 187 188 189 190 191 192 193 194 195 196 197 198 199 200 201 202 203 204 205 206 207 208 209 210 211 212 213 214 215 216 217 218 219 220 221 222 223 224 225 226 227 228 229 230 231 232 233 234 235 236 237 238 239 240 241 242 243 244 245 246 247 248 249 250 251 252 253 254 255 256 257 258 259 260 261 262 263 264 265 266 267 268 269 270 271 272 273 274 275 276 277 278 279 280 281 282 283 284 285 286 287 288 289 290 291 292 293 294 295 296 297 298 299 300 301 302 303 304 305 306 307 308 309 310 311 312 313 314 315 316 317 318 319 320 321 322 323 324 325 326 327 328 329 330 331 332 333 334 335 336 337 338 339 340 341 342 343 344 345 346 347 348 349 350 351 352 353 354 355 356 357 358 359 360 361 362 363 364 365 366 367 368 369 370 371 372 373 374 375 376 377 378 379 380 381 382 383 384 385 386 387 388 389 390 391 392 393 394 395 396 397 398 399 400 401 402 403 404 405 406 407 408 409 410 411 412 413 414 415 416 417 418 419 420 421 422 423 424 425 426 427 428 429 430 431 432 433 434 435 436 437 438 439 440 441 442 443 444 445 446 447 448 449 450 451 452 453 454 455 456 457 458 459 460 461 462 463 464 465 466 467 468 469 470 471 472 473 474 475 476 477 478 479 480 481 482 483 484 485 486 487 488 489 490 491 492 493 494 495 496 497 498 499 500 501 502 503 504 505 506 507 508 509 510 511 512 513 514 515 516 517 518 519 520 521 522 523 524 525 526 527 528 529 530 531 532 533 534 535 536 537 538 539 540 541 542 543 544 545 546 547 548 549 550 551 552 553 554 555 556 557 558 559 560 561 562 563 564 565 566 567 568 569 570 571 572 573 574 575 576 577 578 579 580 581 582 583 584 585 586 587 588 589 590 591 592 593 594 595 596 597 598 599 600 601 602 603 604 605 606 607 608 609 610 611 612 613 614 615 616 617 618 619 620 621 622 623 624 625 626 627 628 629 630 631 632 633 634 635 636 637 638 639 640 641 642 643 644 645 646 647 648 649 650 651 652 653 654 655 656 657 658 659 660 661 662 663 664 665 666 667 668 669 670 671 672 673 674 675 676 677 678 679 680 681 682 683 684 685 686 687 688 689 690 691 692 693 694 695 696 697 698 699 700 701 702 703 704 705 706 707 708 709 710 711 712 713 714 715 716 717 718 719 720 721 722 723 724 725 726 727 728 729 730 731 732 733 734 735 736 737 738 739 740 741 742 743 744 745 746 747 748 749 750 751 752 753 754 755 756 757 758 759 760 761 762 763 764 765 766 767 768 769 770 771 772 773 774 775 776 777 778 779 780 781 782 783 784 785 786 787 788 789 790 791 792 793 794 795 796 797 798 799 800 801 802 803 804 805 806 807 808 809 810 811 812 813 814 815 816 817 818 819 820 821 822 823 824 825 826 827 828 829 830 831 832 833 834 835 836 837 838 839 840 841 842 843 844 845 846 847 848 849 850 851 852 853 854 855 856 857 858 859 860 861 862 863 864 865 866 867 868 869 870 871 872 873 874 875 876 877 878 879 880 881 882 883 884 885 886 887 888 889 890 891 892 893 894 895 896 897 898 899 900 901 902 903 904 905 906 907 908 909 910 911 912 913 914 915 916 917 918 919 920 921 922 923 924 925 926 927 928 929 930 931 932 933 934 935 936 937 938 939 940 941 942 943 944 945 946 947 948 949 950 951 952 953 954 955 956 957 958 959 960 961 962 963 964 965 966 967 968 969 970 971 972 973 974 975 976 977 978 979 980 981 982 983 984 985 986 987 988 989 990 991 992 993 994 995 996 997 998 999 1000 1001 1002 1003 1004 1005 1006 1007 1008 1009 1010 1011 1012 1013 1014 1015 1016 1017 1018 1019 1020 1021 1022 1023 1024 1025 1026 1027 1028 1029 1030 1031 1032 1033 1034 1035 1036 1037 1038 1039 1040 1041 1042 1043 1044 10

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[illegible]

By 2011, the number of people in the United States who are 65 and older is expected to reach 75 million, up from 60 million in 2000. This increase is due to a combination of factors, including a decline in the birth rate and an increase in life expectancy.

[illegible][illegible]

and will still be useful to researchers in other disciplines. The authors are grateful to the referees for their helpful comments.

[illegible]

4. The first three items are the same as in the previous version. The fourth item is changed to:

[illegible][illegible]

It is not clear whether the authors are referring to the same study or to a different one. The text is difficult to read due to the poor quality of the scan.

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$$51 \pm 5 \text{ cm}^2 \text{ min}^{-1} \text{ g}^{-1} \text{ d}^{-1}$$

Sup. Substantive 22 d

$$d^2 = 0, d^3 = 0, \dots, d^k = 0$$

11. x_1, x_2, x_3, x_4

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11. J. J. Burke, *J. Polym. Sci. Polym. Chem. Ed.* **21**, 1111 (1983).

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$$\log \frac{1}{1 - r} = \frac{r}{1 - r} \quad r = 10\%$$

Fig. 6. The dependence of the rate of the reaction of the polymerization of α -methylstyrene on the concentration of the initiator.

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1. A simple price table structure

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$$P = \frac{C}{1 + y} + \frac{C}{1 + y^2} + \dots + \frac{C}{1 + y^n} + \frac{F}{1 + y^n}$$

or

$$P = \frac{C}{y} \left(1 - \frac{1}{(1 + y)^n} \right) + \frac{F}{(1 + y)^n}$$

$$P = \frac{C}{y} \left(1 - \frac{1}{(1 + y)^n} \right) + \frac{F}{(1 + y)^n}$$

$$P = \frac{C}{y} \left(1 - \frac{1}{(1 + y)^n} \right) + \frac{F}{(1 + y)^n}$$

See Subsection 2.3.1

2. Suppose the following bond yield rate schedule is expected to hold:

at 1-year spot rate (by %)

1.0%

See Subsection 2.3.4

3. Suppose the following bond yield rate schedule is expected to hold:

at 1-year spot rate (by %)

1.0%

See Subsection 2.3.4

4. Suppose the following bond yield rate schedule is expected to hold:

at 1-year spot rate (by %)

1.0%

See Subsection 2.3.4

5. Suppose the following bond yield rate schedule is expected to hold:

at 1-year spot rate (by %)

1.0%

See Subsection 2.3.4

6. Suppose the following bond yield rate schedule is expected to hold:

at 1-year spot rate (by %)

1.0%

See Subsection 2.3.4

7. Suppose the following bond yield rate schedule is expected to hold:

at 1-year spot rate (by %)

1.0%

See Subsection 2.3.4

8. Suppose the following bond yield rate schedule is expected to hold:

at 1-year spot rate (by %)

1.0%

See Subsection 2.3.4



Random Cash Flow and Portfolio Analysis

3

1 Introduction

2 Return on Investment

Let X_t be the return on investment at time t .
Then X_t is a random variable.
The expected return is $E(X_t)$.
The variance is $Var(X_t)$.
The standard deviation is $SD(X_t)$.
The coefficient of variation is $CV(X_t) = \frac{SD(X_t)}{E(X_t)}$.
The Sharpe ratio is $\frac{E(X_t) - r_f}{SD(X_t)}$, where r_f is the risk-free rate.
The beta is $\beta = \frac{Cov(X_t, R_t)}{Var(R_t)}$, where R_t is the return on the market.
The correlation coefficient is $\rho = \frac{Cov(X_t, R_t)}{SD(X_t) SD(R_t)}$.

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Random Cash Flow and Portfolio Analysis

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at the time

Let X_t be the random cash flow at time t .
Then X_t is a random variable.
The expected cash flow is $E(X_t)$.
The variance is $Var(X_t)$.
The standard deviation is $SD(X_t)$.
The coefficient of variation is $CV(X_t) = \frac{SD(X_t)}{E(X_t)}$.
The Sharpe ratio is $\frac{E(X_t) - r_f}{SD(X_t)}$, where r_f is the risk-free rate.
The beta is $\beta = \frac{Cov(X_t, R_t)}{Var(R_t)}$, where R_t is the return on the market.
The correlation coefficient is $\rho = \frac{Cov(X_t, R_t)}{SD(X_t) SD(R_t)}$.

Let X_t be the random cash flow at the time period t .
Let R_t be the return on the market at the time period t .
Let r_f be the risk-free rate at the time period t .

3.7. Example 1

Let X be a random variable with the following probability mass function:

x	$P(X=x)$
-1	$\frac{1}{4}$
0	$\frac{1}{2}$
1	$\frac{1}{4}$

Find the expected value of X .

Solution:

The expected value of X is given by $E(X) = \sum_{i=1}^n x_i p_i$. In this case, $E(X) = (-1) \cdot \frac{1}{4} + 0 \cdot \frac{1}{2} + 1 \cdot \frac{1}{4} = -\frac{1}{4} + 0 + \frac{1}{4} = 0$. Therefore, the expected value of X is 0.

□

Let X be a random variable with the following probability mass function:

x	$P(X=x)$
-1	$\frac{1}{4}$
0	$\frac{1}{2}$
1	$\frac{1}{4}$

Find the expected value of X .

3.8. Example 2

Let X be a random variable with the following probability mass function:

x	$P(X=x)$
-1	$\frac{1}{4}$
0	$\frac{1}{2}$
1	$\frac{1}{4}$

Find the expected value of X .

$$V_0 = 100$$

... determine the (continuous) ...

... the ...

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Example 3.3

... the ...

Year	No. of shares	Price of stock (€) per share	Rate of return R_t
1	25	40	0
2	25	48	14.3%
3	25	56	16.7%

Solution

... the ...

No. of shares	Price of stock (€) per share	Total cost (€)	Weights of the stocks in portfolio 1991
25	40	1000	$w_1 = 1000 / 16000 = 0.0625$
25	48	1200	$w_2 = 1200 / 16000 = 0.075$
25	56	1400	$w_3 = 1400 / 16000 = 0.0875$
Total cost of the portfolio =		16000	1.0

Example 1.6

A simple example showing the relationship of rate of return on stock and bond

Rate of return on stock	Stock borrowed and sold		Value of loan
	No. of shares borrowed	Face borrowed value (\$)	
1	100	1000	1000
2	100	200	2000
3	100	300	3000
4	100	400	4000
5	100	500	5000
6	100	600	6000
7	100	700	7000
8	100	800	8000
9	100	900	9000
10	100	1000	10000

The total of shares to repay the loan

Rate of return on stock	No. of shares	Face value (\$)	Repaid at 10% interest
1	100	1000	1100
2	100	2000	2200
3	100	3000	3300
4	100	4000	4400
5	100	5000	5500
6	100	6000	6600
7	100	7000	7700
8	100	8000	8800
9	100	9000	9900
10	100	10000	11000

Zero net interest margin is 10%

Rate of return on stock	No. of shares	Face value (\$)	Repaid at 10% interest
1	100	1000	1100
2	100	2000	2200
3	100	3000	3300
4	100	4000	4400
5	100	5000	5500
6	100	6000	6600
7	100	7000	7700
8	100	8000	8800
9	100	9000	9900
10	100	10000	11000

It is interesting to note that for the person who had purchased this stock on margin 10% (10% of 1000 = 100) and sold it at 1100, the rate of return on the stock is 10%.

$$\frac{1100 - 1000}{1000} = 0.10 = 10\%$$

When the margin is 20% the rate of return would be

$$\frac{1100 - 1000}{1000 \times 0.20} = 0.50 = 50\%$$

3.3 Random returns to an asset

Example 3.3

Time	Asset	Return	Asset	Return	Asset	Return
0	100	0.05	105	0.05	110.25	0.05
1	105	0.05	110.25	0.05	115.76	0.05
2	110.25	0.05	115.76	0.05	121.55	0.05
3	115.76	0.05	121.55	0.05	127.63	0.05
4	121.55	0.05	133.51	0.05	140.28	0.05
5	133.51	0.05	140.28	0.05	147.29	0.05
6	140.28	0.05	154.65	0.05	162.99	0.05
7	154.65	0.05	162.99	0.05	171.24	0.05
8	162.99	0.05	181.89	0.05	187.98	0.05
9	181.89	0.05	197.13	0.05	206.79	0.05
10	197.13	0.05	213.73	0.05	227.27	0.05

At time t , the asset value is V_t . The return at time t is $R_t = \frac{V_t - V_{t-1}}{V_{t-1}}$. The cumulative return from time 0 to time t is $R_t = \frac{V_t - V_0}{V_0}$.



Example 3.3 (continued) The asset value at time t is $V_t = V_0(1 + R_1)(1 + R_2) \dots (1 + R_t)$. The cumulative return at time t is $R_t = \frac{V_t - V_0}{V_0}$. The expected value of the asset at time t is $E[V_t] = V_0(1 + \mu)^t$, where μ is the expected return per period.

Example 3.3

Let V_t be the asset value at time t . The return at time t is $R_t = \frac{V_t - V_{t-1}}{V_{t-1}}$. The cumulative return from time 0 to time t is $R_t = \frac{V_t - V_0}{V_0}$. The expected value of the asset at time t is $E[V_t] = V_0(1 + \mu)^t$, where μ is the expected return per period.

Let X be the number of heads in 10 tosses of a fair coin.

Find the probability that X is between 4 and 6.

$$P(4 \leq X \leq 6)$$

$$= P(X=4) + P(X=5) + P(X=6)$$

$$= \frac{1}{2^{10}} \left(\binom{10}{4} + \binom{10}{5} + \binom{10}{6} \right)$$

$$= \frac{1}{1024} (252 + 252 + 210)$$

$$= \frac{714}{1024}$$

$$= \frac{357}{512}$$

Therefore, the probability that X is between 4 and 6 is $\frac{357}{512}$.

$$P(4 \leq X \leq 6) = \frac{357}{512}$$

$$= 0.697265625$$

$$\approx 69.73\%$$

Let X be the number of heads in 10 tosses of a fair coin.

Find the probability that X is between 4 and 6.

Let X be the number of heads in 10 tosses of a fair coin.

Find the probability that X is between 4 and 6.

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Let X be the number of heads in 10 tosses of a fair coin.

Find the probability that X is between 4 and 6.

Example 2: Finding the probability of a specific outcome

Let X be the number of heads in 10 tosses of a fair coin.

Find the probability that X is between 4 and 6.

Let X be the number of heads in 10 tosses of a fair coin.

Find the probability that X is between 4 and 6.

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Let X be the number of heads in 10 tosses of a fair coin.

Find the probability that X is between 4 and 6.

Example 2:

Let X be the number of heads in 10 tosses of a fair coin.

Find the probability that X is between 4 and 6.

Let X be the number of heads in 10 tosses of a fair coin.

Find the probability that X is between 4 and 6.

Let X be the number of heads in 10 tosses of a fair coin.

Find the probability that X is between 4 and 6.

3.3.2 Variance of a Random Variable

Let X be a random variable with probability mass function $p_X(x)$ and mean μ_X . The variance of X , denoted by σ_X^2 , is defined as the expected value of the squared deviation from the mean:

$$\sigma_X^2 = E[(X - \mu_X)^2]$$

Using the definition of the expected value, the variance can be expressed as:

$$\sigma_X^2 = \sum_{x \in \mathcal{X}} (x - \mu_X)^2 p_X(x)$$

Example 3.10 Consider a random variable X with the following probability mass function:

x	$p_X(x)$
-1	0.2
0	0.5
1	0.3

Calculate the variance of X .

Let X be a random variable with probability mass function $p_X(x)$ and mean μ_X . The variance of X , denoted by σ_X^2 , is defined as the expected value of the squared deviation from the mean:

$$\sigma_X^2 = E[(X - \mu_X)^2]$$

Using the definition of the expected value, the variance can be expressed as:

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0	0.5
1	0.3

Calculate the variance of X .

Example 3.10 Consider a random variable X with the following probability mass function:

x	$p_X(x)$
-1	0.2
0	0.5
1	0.3

Calculate the variance of X .

and returns
 $\mu = 0.1$
 $\sigma = 0.1$

Rate of return
 $\mu = 0.1$
 $\sigma = 0.1$

Bad or possible
 $\mu = 0.1$
 $\sigma = 0.1$

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... the portfolio would be $\sum_{i=1}^n w_i \mu_i$

... 1/5 = 0.2

... of them 2 = 1/5 = 0.2

Example 1

... 1/5 = 0.2

For the purpose of this exercise, we assume that the return on the market portfolio is given by

$$R_M = 0.10 + 0.05 \epsilon_M$$

Simulation

Assume that the return on the market portfolio is given by

$$R_M = 0.10 + 0.05 \epsilon_M$$

Assume that the return on the market portfolio is given by

$$R_M = 0.10 + 0.05 \epsilon_M$$

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Assume that the return on the market portfolio is given by

$$R_M = 0.10 + 0.05 \epsilon_M$$

3.4.3 Systematic and Unsystematic risks

Assume that the return on the market portfolio is given by

$$R_M = 0.10 + 0.05 \epsilon_M$$

Assume that the return on the market portfolio is given by

$$R_M = 0.10 + 0.05 \epsilon_M$$

Assume that the return on the market portfolio is given by

$$R_M = 0.10 + 0.05 \epsilon_M$$

	Standard deviation	Mean	Standard deviation
Stock	0.05	0.10	0.05
Portfolio	0.05	0.10	0.05
Market	0.05	0.10	0.05

Assume that the return on the market portfolio is given by

$$R_M = 0.10 + 0.05 \epsilon_M$$

Assume that the return on the market portfolio is given by

$$R_M = 0.10 + 0.05 \epsilon_M$$

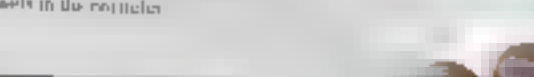
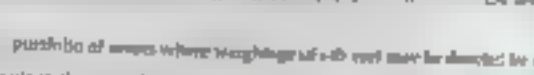
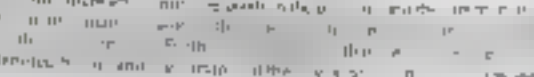
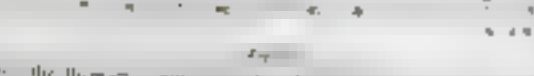
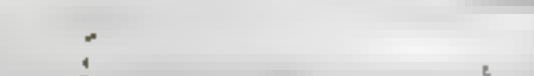
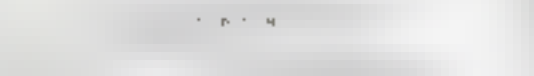
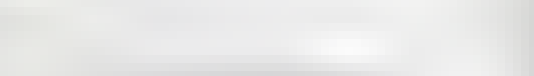
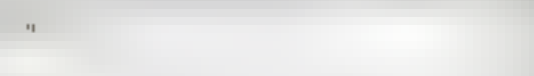
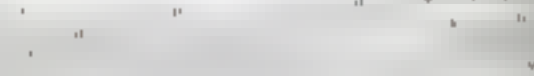
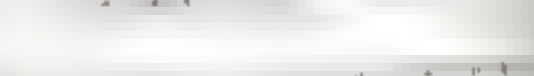
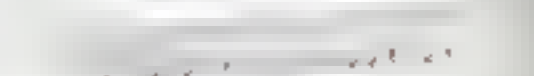
3.4.3 Systematic & Unsystematic risks

Assume that the return on the market portfolio is given by

$$R_M = 0.10 + 0.05 \epsilon_M$$

Assume that the return on the market portfolio is given by

$$R_M = 0.10 + 0.05 \epsilon_M$$



Let $\{X_t\}$ where $E[X_t] = 0$, $V[X_t] = \sigma^2$ by assumption

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Random Cash Flow and Portfolio Analysis

2.1 Data-return profile of a two asset portfolio

$$\sum_{i=1}^n w_i r_{i,t} = r_{p,t} \quad \text{Eq 2.10}$$

Table 2.2

Expected return of two stocks

State	Stock 1	Stock 2	Portfolio
1	10	40	20
2	30	10	20
3	50	40	45
4	70	10	40

The expected return of the portfolio is 35% and the standard deviation is 15%. The portfolio is efficient because it has the highest expected return for a given level of risk.

[illegible][illegible]

11. $\frac{1}{2} \times \frac{1}{3} = \frac{1}{6}$ 12. $\frac{1}{4} \times \frac{1}{5} = \frac{1}{20}$ 13. $\frac{1}{6} \times \frac{1}{7} = \frac{1}{42}$ 14. $\frac{1}{8} \times \frac{1}{9} = \frac{1}{72}$ 15. $\frac{1}{10} \times \frac{1}{11} = \frac{1}{110}$

α	β	γ	δ	ϵ	ζ	η	θ	ι	κ	λ	μ	ν	ξ	\omicron	π	ρ	σ	τ	υ	ϕ	χ	ψ	ω	
0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24

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[illegible]

Table 1

Different proportions of two stocks

Weights	A		B		C		D	
	0	1	0	1	0	1	0	1
	1	0	0	1	1	0	0	1
Expected return and risk								
	0	1	0	1	0	1	0	1

In the case of the two stocks, the expected return and risk of the portfolio can be calculated as follows. The expected return of the portfolio is given by the weighted average of the expected returns of the two stocks. The expected risk of the portfolio is given by the weighted average of the expected risks of the two stocks.

Expected return and risk of the portfolio

$$\text{When } p_{12} = 0 \Rightarrow (E(R_p), \sigma_p) =$$

$$E(R_p) = 0.5 \times 10.5 + 0.5 \times 10.5 = 10.5\%$$

$$\sigma_p =$$

$$\sigma_p =$$

By the way, the expected return and risk of the portfolio can be calculated as follows.

In the case of the two stocks, the expected return and risk of the portfolio can be calculated as follows.

$$E(R_p) = 0.5 \times 10.5 + 0.5 \times 10.5 = 10.5\%$$

$$\sigma_p = 0.5 \times 10.5 + 0.5 \times 10.5 = 10.5\%$$

$$\sigma_p = 0.5 \times 10.5 + 0.5 \times 10.5 = 10.5\%$$

It is to be noted that portfolio risk is always higher than the expected return of the portfolio.

When the proportion of Stock A is zero, the portfolio is composed of 100% of Stock B. In this case, the expected return and risk of the portfolio are given by the expected return and risk of Stock B.

When the proportion of Stock A is 1, the portfolio is composed of 100% of Stock A. In this case, the expected return and risk of the portfolio are given by the expected return and risk of Stock A.

When the proportion of Stock A is 0.5, the portfolio is composed of 50% of Stock A and 50% of Stock B. In this case, the expected return and risk of the portfolio are given by the expected return and risk of the portfolio.

$$E(R_p) = 0.5 \times 10.5 + 0.5 \times 10.5 = 10.5\%$$

$$\sigma_p = 0.5 \times 10.5 + 0.5 \times 10.5 = 10.5\%$$

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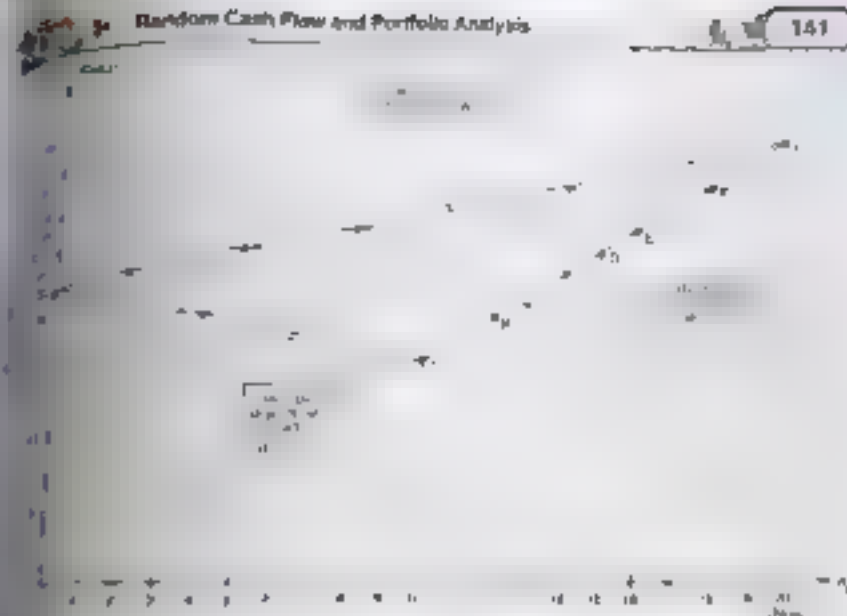


Fig. 1.4

It is to be noted that when we plot the risk-return combinations for different portfolios, the curve is concave to the left. This indicates that there is a negative correlation between the expected return and the standard deviation of the portfolio. This is because the expected return of the portfolio is the weighted average of the expected returns of the two stocks, while the standard deviation of the portfolio is less than the weighted average of the standard deviations of the two stocks.

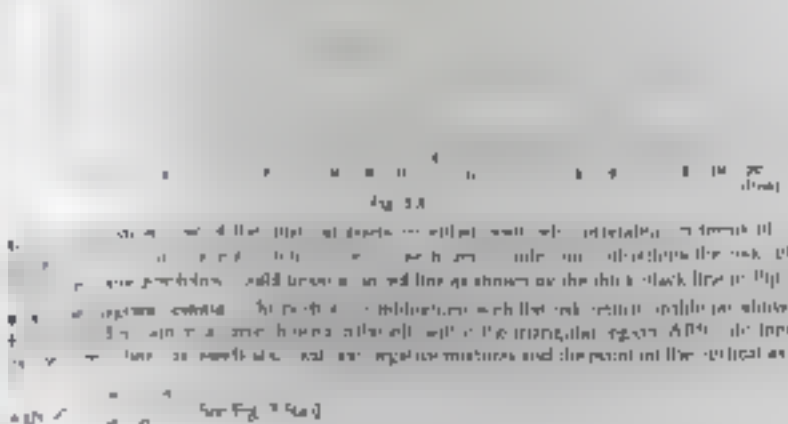
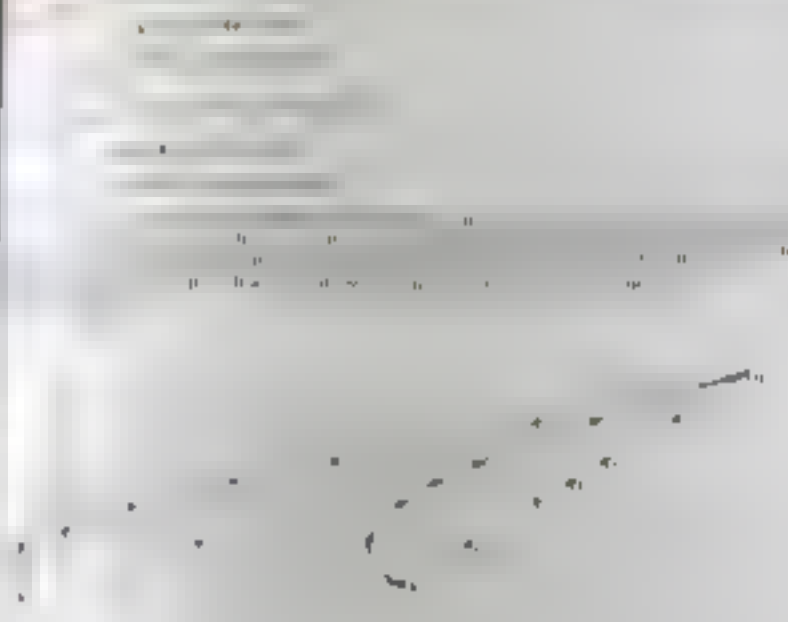
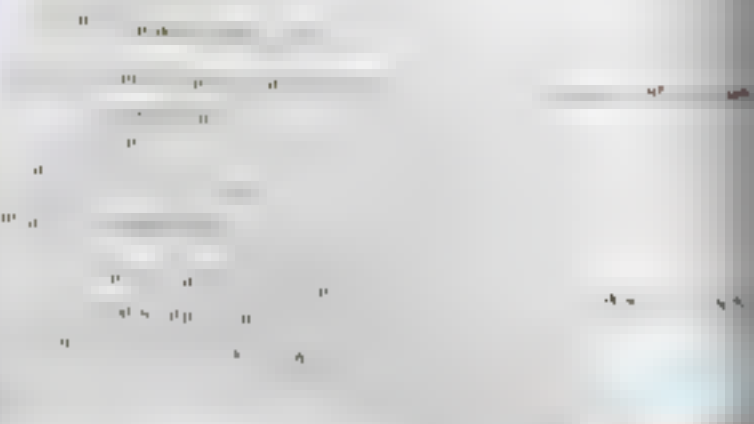
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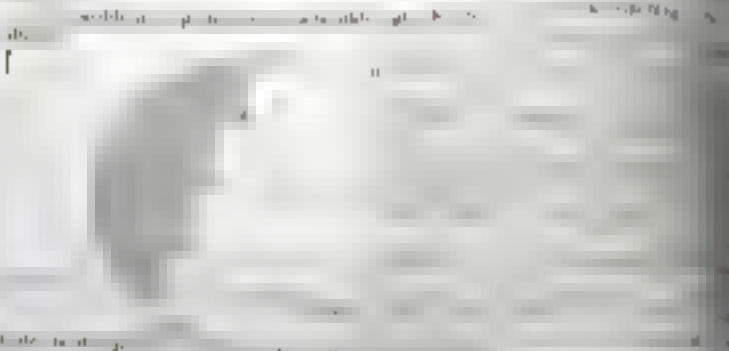
It is to be noted that when we plot the risk-return combinations for different portfolios, the curve is concave to the left. This indicates that there is a negative correlation between the expected return and the standard deviation of the portfolio. This is because the expected return of the portfolio is the weighted average of the expected returns of the two stocks, while the standard deviation of the portfolio is less than the weighted average of the standard deviations of the two stocks.

Table 1

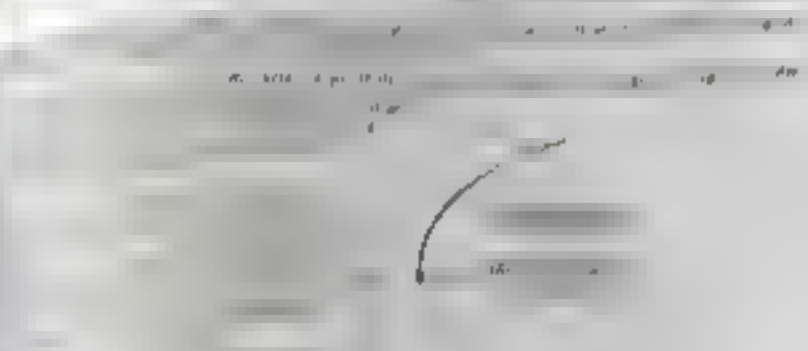
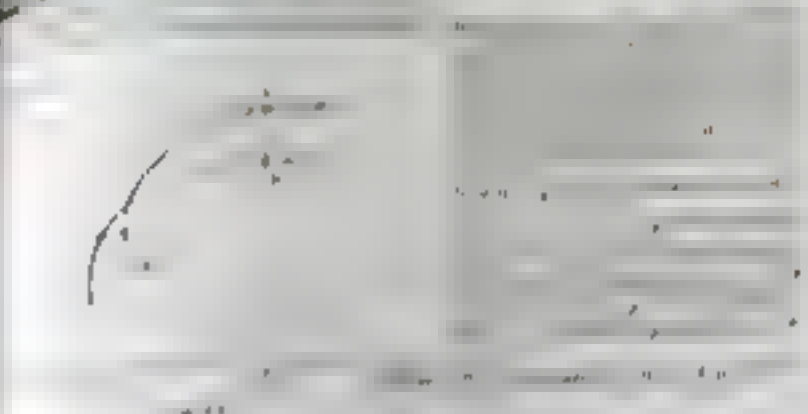
Weights	A		B		C		D	
	0	1	0	1	0	1	0	1
	1	0	0	1	1	0	0	1
Expected return and risk								
	0	1	0	1	0	1	0	1



Die ...



Die ...



Die ...

Asset	Expected Return	Standard Deviation	Correlation
1	10%	15%	0.5
2	12%	20%	0.3
3	8%	10%	0.6
4	9%	12%	0.4
5	11%	18%	0.2
6	7%	8%	0.7
7	13%	22%	0.1
8	6%	5%	0.8
9	14%	25%	0.0
10	5%	3%	0.9

Expected Return = 10%

Standard Deviation = 15%

Correlation = 0.5

Expected Return = 12%

Standard Deviation = 20%

Correlation = 0.3

Expected Return = 8%

Standard Deviation = 10%

Correlation = 0.6

Expected Return = 9%

Standard Deviation = 12%

Correlation = 0.4

Expected Return = 11%

Standard Deviation = 18%

Correlation = 0.2

Expected Return = 7%

Standard Deviation = 8%

Correlation = 0.7

Expected Return = 13%

Standard Deviation = 22%

Correlation = 0.1

Expected Return = 6%

Standard Deviation = 5%

Correlation = 0.8

Expected Return = 14%

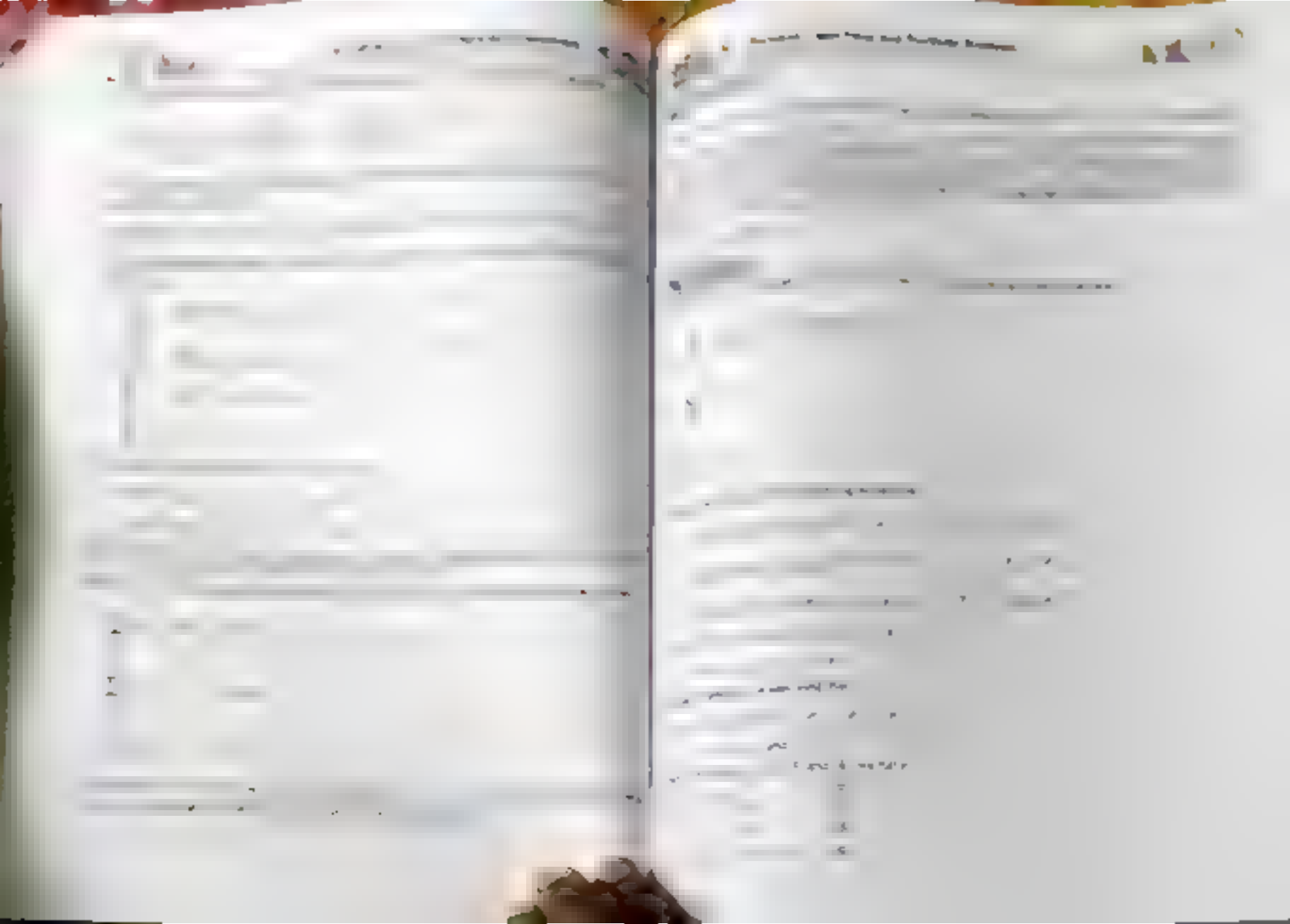
Standard Deviation = 25%

Correlation = 0.0

Expected Return = 5%

Standard Deviation = 3%

Correlation = 0.9



$$\begin{aligned} \sigma^2 &= \sigma^2 \\ \sigma &= \sigma \end{aligned}$$

16

Let x_1, x_2, \dots, x_n be a random sample of size n from a normal distribution with mean μ and variance σ^2 . Then the sample mean \bar{x} and sample variance s^2 are given by

$$\bar{x} = \frac{1}{n} \sum_{i=1}^n x_i \quad \text{and} \quad s^2 = \frac{1}{n-1} \sum_{i=1}^n (x_i - \bar{x})^2$$

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$$\begin{aligned} \bar{x} &= \frac{1}{n} \sum_{i=1}^n x_i \\ s^2 &= \frac{1}{n-1} \sum_{i=1}^n (x_i - \bar{x})^2 \end{aligned}$$

For the portfolio return R_p we have

$$R_p = \frac{1}{n} \sum_{i=1}^n R_i$$

$$\sigma_p^2 = \sigma_1^2 + \sigma_2^2 + \sigma_3^2 + \sigma_4^2 + \sigma_5^2 + \sigma_6^2 + \sigma_7^2 + \sigma_8^2 + \sigma_9^2 + \sigma_{10}^2$$

$$\sigma_p = \sqrt{\sigma_p^2}$$

Note: substitution for values of β
 equation 14: see text

$$\sigma_{\theta} = \quad +$$

[illegible]

11. $\frac{2}{3}p$ p $\frac{1}{3}p$

$\frac{1}{2} \times \frac{1}{2} = \frac{1}{4}$

100

1. $\frac{1}{2}$

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$\frac{1}{\sqrt{2}} \begin{pmatrix} 1 & i \\ 0 & 1 \end{pmatrix}$

Negativ: $\Delta = \text{Haben } P_p \text{ + Haben } G_p \quad \Delta = \frac{A}{2}$

$$R_p = \frac{1}{\sqrt{1 - \frac{v^2}{c^2}}} = \gamma = 1.11$$

(4) When $\tilde{r}_p = 2$, then

$$\begin{aligned} \sigma_c &= \sqrt{\frac{1}{n}} \cdot \frac{s}{\sqrt{1 - \frac{1}{n}}} \\ &= \sqrt{\frac{1}{10}} \cdot \frac{0.0001}{\sqrt{1 - \frac{1}{10}}} \\ &= \sqrt{\frac{10^{-8}}{9}} = \frac{1}{3} \cdot 10^{-4} \end{aligned}$$

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FIG. 2

Prop. 2.5. $\mathcal{L}_2 = \mathcal{L}_1$ if and only if \mathcal{L}_1 is the full lattice of all submodules of \mathcal{L}_1 . \square

1.5.1 Two-Handed Theorems

1. The first part of the document is a letter from the President of the United States to the Congress, dated January 1, 1865. It is a formal communication, and it is written in a very formal and dignified style. The President is addressing the Congress, and he is discussing the state of the Union and the progress of the war.

[illegible]

(continued)

[illegible]

התאחדות המורים והתאחדות ההורים יחדיו, ת"מ, תשס"ח

$$\begin{array}{ccccc} & & \sigma_1 & \tau & \sigma \\ \sigma_1 & = & \sigma_2 & \sigma_3 & \sigma \\ & & \sigma_4 & \sigma_5 & \sigma_6 \end{array}$$

$$= \frac{1}{\sqrt{2}} \begin{pmatrix} 0 & 1 \\ -1 & 0 \end{pmatrix}$$

$$P = \frac{1}{1+r} E[R] = \frac{1}{1+r}$$

For a portfolio, we have defined in Fig. 3.2 Fig.

are adapted to portfolio. In case of adding the portfolio, the portfolio is adapted to the portfolio. The portfolio is adapted to the portfolio.

For a portfolio, we have defined in Fig. 3.2 Fig.

$$P = \frac{1}{1+r} E[R] = \frac{1}{1+r}$$

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$$P = \frac{1}{1+r} E[R] = \frac{1}{1+r}$$

§ 5.2 Inclusion of a risk-free asset in the portfolio

When a risk-free asset is included in the portfolio, the portfolio return is given by

$$R_p = \alpha R_f + (1 - \alpha) R_m$$

where R_f is the return on the risk-free asset, R_m is the return on the market portfolio, and α is the weight of the risk-free asset in the portfolio. The weight α is determined by the investor's risk aversion. If the investor is risk-averse, α will be greater than zero, indicating that the investor holds a positive amount of the risk-free asset. If the investor is risk-seeking, α will be less than zero, indicating that the investor holds a negative amount of the risk-free asset (i.e., they are borrowing at the risk-free rate).

The return on the risk-free asset is given by

where R_f is the return on the risk-free asset.

The return on the market portfolio is given by

where R_m is the return on the market portfolio.

The return on the portfolio is given by

where R_p is the return on the portfolio.

where R_f is the return on the risk-free asset.

where R_m is the return on the market portfolio.

where α is the weight of the risk-free asset in the portfolio.

where R_f is the return on the risk-free asset.

where R_m is the return on the market portfolio.

where α is the weight of the risk-free asset in the portfolio.

where R_f is the return on the risk-free asset.

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where α is the weight of the risk-free asset in the portfolio.

where R_f is the return on the risk-free asset.

where R_m is the return on the market portfolio.

where α is the weight of the risk-free asset in the portfolio.

where R_f is the return on the risk-free asset.

where R_m is the return on the market portfolio.

where α is the weight of the risk-free asset in the portfolio.

3.5.3 Investing in both risk-free assets and a risky portfolio

A risk-return frontier can be constructed for portfolios of risky assets. The frontier is the set of portfolios of risky assets that are efficient in terms of risk and return. The frontier is a curve that represents the trade-off between risk and return. The frontier is a curve that represents the trade-off between risk and return.

Example 3.8

Consider two risky assets, A and B, with the following characteristics:

	Risky Assets	Expected rate of return	Standard deviation of return
Asset A	Stock	10%	20%
Asset B	Bond	5%	10%

Covariance of returns between stock and bond is $\sigma_{AB} = 14\%$

The risk-free asset's expected rate of return is assumed to be 4%.

1. Calculate the portfolio risk and return for two risky portfolios assuming 70% of return and 30% of stock.

2. Calculate the portfolio risk and return for a portfolio created using a combination of the two risky portfolios and the risk-free asset with the following weights:

Asset A

Asset B

Asset C

Asset D

Asset E

Asset F

Let us assume a portfolio consisting of risky assets (Stock and Bond) will be formed.

Let us assume the portfolio will be

$$100\% = (0.7 \times 10\% + 0.3 \times 5\%) = 7.5\%$$

$$\text{Covariance } \sigma_{AB}^2 = \sigma_A^2 \sigma_B^2 + 2\sigma_A \sigma_B \rho_{AB}$$

$$\sigma_{AB}^2 = 0.02 \times 0.01 + 2 \times 0.02 \times 0.01 \times 0.7 = 0.0004$$

Asset

Let us assume a portfolio will be formed. Let the expected rate of return on the

portfolio be 7.5%. (Consider the first two portfolios in the risky portfolio and the

risk-free asset.)

Let us assume the portfolio will be formed. Let the expected rate of return on the

portfolio be 7.5% for the risk-free asset, and $\sigma_{AB} = 0$

$$\sigma_{AB}^2 = \sigma_A^2 \sigma_B^2 + 2\sigma_A \sigma_B \rho_{AB}$$

$$\sigma_{AB}^2 = 0.02 \times 0.01 + 2 \times 0.02 \times 0.01 \times 0.7 = 0.0004$$

$$\sigma_{AB}^2 = 0.02 \times 0.01 + 2 \times 0.02 \times 0.01 \times 0.7 = 0.0004$$

$$\sigma_{AB}^2 = 0.02 \times 0.01 + 2 \times 0.02 \times 0.01 \times 0.7 = 0.0004$$

Let us assume the portfolio will be formed. Let the expected rate of return on the

portfolio be 7.5%. (Consider the first two portfolios in the risky portfolio and the

risk-free asset.)

$$\sigma_{AB}^2 = \sigma_A^2 \sigma_B^2 + 2\sigma_A \sigma_B \rho_{AB}$$

2.5.4. *How does sampling and the variance problem*

...and the ...

[illegible]

10. The first part of the paper is devoted to the study of the properties of the function $f(x)$ defined by the equation $f(x) = \sum_{n=0}^{\infty} a_n x^n$, where a_n are the coefficients of the power series. It is shown that the function $f(x)$ is analytic in the disk $|x| < 1$ and that it satisfies the functional equation $f(x) = x f(x^2) + 1$. The second part of the paper is devoted to the study of the properties of the function $g(x)$ defined by the equation $g(x) = \sum_{n=0}^{\infty} b_n x^n$, where b_n are the coefficients of the power series. It is shown that the function $g(x)$ is analytic in the disk $|x| < 1$ and that it satisfies the functional equation $g(x) = x g(x^2) + 1$.

When the efficiency of the process is 100% then a reaction is that less or the efficient
 $\Delta G = 0$ with a less free energy than the free energy change possible
 at 25°C. The rate is understood and hence the free energy change
 is a criterion between the spontaneous reaction and the efficient
 $\Delta G = 0$ process is $\Delta G = 0$

1.33

Example 3.17

An investor considers investing in two assets: an equity and a risk-free asset. The return on the equity is 15% and the return on the risk-free asset is 5%. The correlation coefficient between the returns on the equity and the risk-free asset is 0.5. The standard deviation of the return on the equity is 10% and the standard deviation of the return on the risk-free asset is 0%.

- In what proportion should the investor invest in the equity and the risk-free asset to achieve a portfolio return of 10%?
- What is the standard deviation of the return on the portfolio?
- What is the correlation coefficient between the return on the portfolio and the return on the equity?
- What is the standard deviation of the return on the portfolio?

Solution

- When the investor combines a risky fund in the risk portfolio with the risk-free asset, the expected rate of return on the portfolio is given by:

$$r_p = w_E r_E + (1 - w_E) r_f$$

where w_E = proportion of equity assets in the portfolio
 r_E = expected rate of return on equity assets
 r_f = expected rate of return on risk-free assets

The value of the rate of return on the portfolio will be

$$r_p = 0.15w_E + 0.05(1 - w_E)$$

$$= 0.15w_E + 0.05 - 0.05w_E$$

$$= 0.10w_E + 0.05$$

When $w_E = 1$, the portfolio is composed of 100% equity assets and the return is 15%.

ρ_{EF} = Correlation coefficient of the prospects of equity assets and risk-free asset

$$\text{Since } \sigma_{EF}^2 = 0 \text{ then } \rho_{EF} = 0 \text{ and } \sigma_p^2 = w_E^2 \sigma_E^2$$

$$\sigma_p = w_E \sigma_E$$

$$r_p = 0.10w_E + 0.05$$

$$r_p = 0.10w_E + 0.05$$

$$r_p = 0.10w_E + 0.05$$

$$r_p = 0.10w_E + 0.05$$

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$$r_p = 0.10w_E + 0.05$$

$$r_p = 0.10w_E + 0.05$$

1.5 Utility function of the investor and optimal portfolio

Let u be a utility function of the investor. We assume that u is increasing and concave. The optimal portfolio is the one that maximizes the expected utility of the terminal wealth.

$$u = f(y, \sigma_p)$$

where y is the expected return and σ_p is the standard deviation of the portfolio return. The optimal portfolio is the one that maximizes the expected utility of the terminal wealth.



Fig. 1.5.1

and the optimal portfolio is the one that maximizes the expected utility of the terminal wealth. The optimal portfolio is the one that maximizes the expected utility of the terminal wealth.

Fig. 1.5.2

Let u be a utility function of the investor. We assume that u is increasing and concave. The optimal portfolio is the one that maximizes the expected utility of the terminal wealth.

3.3.7 Borrowing and lending at risk-free rate and optimal portfolio



Abstract

$u_A = \dots, A^1, p, \sigma_p$ and the utility function of Period-2 is

4 4 11

1. The first step in the process of identifying a problem is to recognize that a problem exists. This is often done by comparing current performance with a desired state or goal. If there is a discrepancy, a problem is identified.

did, the high-frequency curves of γ -irradiated β -lactone by K_1^0 and K_1^1 are

where compared to the indifference curves of investor-B (denoted by K_B^0 and K_B^1

II

11. $\frac{1}{2} \log 2$

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number 6 of the explained variable is used by (6), (7), (8) and (9).

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Journal of Management Education 32(10)

Initial \log_{10} fold change in Δ expression of the 116 genes

$$0 \rightarrow H^1(\Gamma, \mathbb{Z}) \rightarrow H^1(\Gamma, \mathbb{R}) \rightarrow H^1(\Gamma, \mathbb{C}) \rightarrow H^1(\Gamma, \mathbb{C}^*) \rightarrow H^1(\Gamma, \mathbb{C}^*) \rightarrow H^1(\Gamma, \mathbb{C}^*) \rightarrow H^1(\Gamma, \mathbb{C}^*)$$

$\frac{d}{dt} \left(\frac{\partial L}{\partial \dot{x}} \right) = \frac{\partial L}{\partial x}$

11. *Journal of the American Statistical Association*, 1991, 86, 103-110.

1. $\frac{1}{2}$ 2. $\frac{1}{2}$ 3. $\frac{1}{2}$ 4. $\frac{1}{2}$ 5. $\frac{1}{2}$ 6. $\frac{1}{2}$ 7. $\frac{1}{2}$ 8. $\frac{1}{2}$ 9. $\frac{1}{2}$ 10. $\frac{1}{2}$ 11. $\frac{1}{2}$ 12. $\frac{1}{2}$ 13. $\frac{1}{2}$ 14. $\frac{1}{2}$ 15. $\frac{1}{2}$ 16. $\frac{1}{2}$ 17. $\frac{1}{2}$ 18. $\frac{1}{2}$ 19. $\frac{1}{2}$ 20. $\frac{1}{2}$ 21. $\frac{1}{2}$ 22. $\frac{1}{2}$ 23. $\frac{1}{2}$ 24. $\frac{1}{2}$ 25. $\frac{1}{2}$ 26. $\frac{1}{2}$ 27. $\frac{1}{2}$ 28. $\frac{1}{2}$ 29. $\frac{1}{2}$ 30. $\frac{1}{2}$ 31. $\frac{1}{2}$ 32. $\frac{1}{2}$ 33. $\frac{1}{2}$ 34. $\frac{1}{2}$ 35. $\frac{1}{2}$ 36. $\frac{1}{2}$ 37. $\frac{1}{2}$ 38. $\frac{1}{2}$ 39. $\frac{1}{2}$ 40. $\frac{1}{2}$ 41. $\frac{1}{2}$ 42. $\frac{1}{2}$ 43. $\frac{1}{2}$ 44. $\frac{1}{2}$ 45. $\frac{1}{2}$ 46. $\frac{1}{2}$ 47. $\frac{1}{2}$ 48. $\frac{1}{2}$ 49. $\frac{1}{2}$ 50. $\frac{1}{2}$ 51. $\frac{1}{2}$ 52. $\frac{1}{2}$ 53. $\frac{1}{2}$ 54. $\frac{1}{2}$ 55. $\frac{1}{2}$ 56. $\frac{1}{2}$ 57. $\frac{1}{2}$ 58. $\frac{1}{2}$ 59. $\frac{1}{2}$ 60. $\frac{1}{2}$ 61. $\frac{1}{2}$ 62. $\frac{1}{2}$ 63. $\frac{1}{2}$ 64. $\frac{1}{2}$ 65. $\frac{1}{2}$ 66. $\frac{1}{2}$ 67. $\frac{1}{2}$ 68. $\frac{1}{2}$ 69. $\frac{1}{2}$ 70. $\frac{1}{2}$ 71. $\frac{1}{2}$ 72. $\frac{1}{2}$ 73. $\frac{1}{2}$ 74. $\frac{1}{2}$ 75. $\frac{1}{2}$ 76. $\frac{1}{2}$ 77. $\frac{1}{2}$ 78. $\frac{1}{2}$ 79. $\frac{1}{2}$ 80. $\frac{1}{2}$ 81. $\frac{1}{2}$ 82. $\frac{1}{2}$ 83. $\frac{1}{2}$ 84. $\frac{1}{2}$ 85. $\frac{1}{2}$ 86. $\frac{1}{2}$ 87. $\frac{1}{2}$ 88. $\frac{1}{2}$ 89. $\frac{1}{2}$ 90. $\frac{1}{2}$ 91. $\frac{1}{2}$ 92. $\frac{1}{2}$ 93. $\frac{1}{2}$ 94. $\frac{1}{2}$ 95. $\frac{1}{2}$ 96. $\frac{1}{2}$ 97. $\frac{1}{2}$ 98. $\frac{1}{2}$ 99. $\frac{1}{2}$ 100. $\frac{1}{2}$

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1. $\mathcal{A} = \{A_1, A_2, \dots, A_n\}$ is a family of n sets. \mathcal{A} is called a *partition* of S if $A_i \cap A_j = \emptyset$ for $i \neq j$ and $\bigcup_{i=1}^n A_i = S$. If \mathcal{A} is a partition of S , then S is called a *disjoint union* of the sets in \mathcal{A} .

1994, 1995, 1996, 1997, 1998, 1999, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025, 2026, 2027, 2028, 2029, 2030, 2031, 2032, 2033, 2034, 2035, 2036, 2037, 2038, 2039, 2040, 2041, 2042, 2043, 2044, 2045, 2046, 2047, 2048, 2049, 2050, 2051, 2052, 2053, 2054, 2055, 2056, 2057, 2058, 2059, 2060, 2061, 2062, 2063, 2064, 2065, 2066, 2067, 2068, 2069, 2070, 2071, 2072, 2073, 2074, 2075, 2076, 2077, 2078, 2079, 2080, 2081, 2082, 2083, 2084, 2085, 2086, 2087, 2088, 2089, 2090, 2091, 2092, 2093, 2094, 2095, 2096, 2097, 2098, 2099, 2100, 2101, 2102, 2103, 2104, 2105, 2106, 2107, 2108, 2109, 2110, 2111, 2112, 2113, 2114, 2115, 2116, 2117, 2118, 2119, 2120, 2121, 2122, 2123, 2124, 2125, 2126, 2127, 2128, 2129, 2130, 2131, 2132, 2133, 2134, 2135, 2136, 2137, 2138, 2139, 2140, 2141, 2142, 2143, 2144, 2145, 2146, 2147, 2148, 2149, 2150, 2151, 2152, 2153, 2154, 2155, 2156, 2157, 2158, 2159, 2160, 2161, 2162, 2163, 2164, 2165, 2166, 2167, 2168, 2169, 2170, 2171, 2172, 2173, 2174, 2175, 2176, 2177, 2178, 2179, 2180, 2181, 2182, 2183, 2184, 2185, 2186, 2187, 2188, 2189, 2190, 2191, 2192, 2193, 2194, 2195, 2196, 2197, 2198, 2199, 2200, 2201, 2202, 2203, 2204, 2205, 2206, 2207, 2208, 2209, 2210, 2211, 2212, 2213, 2214, 2215, 2216, 2217, 2218, 2219, 2220, 2221, 2222, 2223, 2224, 2225, 2226, 2227, 2228, 2229, 2230, 2231, 2232, 2233, 2234, 2235, 2236, 2237, 2238, 2239, 2240, 2241, 2242, 2243, 2244, 2245, 2246, 2247, 2248, 2249, 2250, 2251, 2252, 2253, 2254, 2255, 2256, 2257, 2258, 2259, 2260, 2261, 2262, 2263, 2264, 2265, 2266, 2267, 2268, 2269, 2270, 2271, 2272, 2273, 2274, 2275, 2276, 2277, 2278, 2279, 2280, 2281, 2282, 2283, 2284, 2285, 2286, 2287, 2288, 2289, 2290, 2291, 2292, 2293, 2294, 2295, 2296, 2297, 2298, 2299, 2300, 2301, 2302, 2303, 2304, 2305, 2306, 2307, 2308, 2309, 2310, 2311, 2312, 2313, 2314, 2315, 2316, 2317, 2318, 2319, 2320, 2321, 2322, 2323, 2324, 2325, 2326, 2327, 2328, 2329, 2330, 2331, 2332, 2333, 2334, 2335, 2336, 2337, 2338, 2339, 2340, 2341, 2342, 2343, 2344, 2345, 2346, 2347, 2348, 2349, 2350, 2351, 2352, 2353, 2354, 2355, 2356, 2357, 2358, 2359, 2360, 2361, 2362, 2363, 2364, 2365, 2366, 2367, 2368, 2369, 2370, 2371, 2372, 2373, 2374, 2375, 2376, 2377, 2378, 2379, 2380, 2381, 2382, 2383, 2384, 2385, 2386, 2387, 2388, 2389, 2390, 2391, 2392, 2393, 2394, 2395, 2396, 2397, 2398, 2399, 2400, 2401, 2402, 2403, 2404, 2405, 2406, 2407, 2408, 2409, 2410, 2411, 2412, 2413, 2414, 2415, 2416, 2417, 2418, 2419, 2420, 2421, 2422, 2423, 2424, 2425, 2426, 2427, 2428, 2429, 2430, 2431, 2432, 2433, 2434, 2435, 2436, 2437, 2438, 2439, 2440, 2441, 2442, 2443, 2444, 2445, 2446, 2447, 2448, 2449, 2450, 2451, 2452, 2453, 2454, 2455, 2456, 2457, 2458, 2459, 2460, 2461, 2462, 2463, 2464, 2465, 2466, 2467, 2468, 2469, 2470, 2471, 2472, 2473, 2474, 2475, 2476, 2477, 2478, 2479, 2480, 2481, 2482, 2483, 2484, 2485, 2486, 2487, 2488, 2489, 2490, 2491, 2492, 2493, 2494, 2495, 2496, 2497, 2498, 2499, 2500, 2501, 2502, 2503, 2504, 2505, 2506, 2507, 2508, 2509, 2510, 2511, 2512, 2513, 2514, 2515, 2516, 2517, 2518, 2519, 2520, 2521, 2522, 2523, 2524, 2525, 2526, 2527, 2528, 2529, 2530, 2531, 2532, 2533, 2534, 2535, 2536, 2537, 2538, 2539, 2540, 2541, 2542, 2543, 2544, 2545, 2546, 2547, 2548, 2549, 2550, 2551, 2552, 2553, 2554, 2555, 2556, 2557, 2558, 2559, 2560, 2561, 2562, 2563, 2564, 2565, 2566, 2567, 2568, 2569, 2570, 2571, 2572, 2573, 2574, 2575, 2576, 2577, 2578, 2579, 2580, 2581, 2582, 2583, 2584, 2585, 2586, 2587, 2588, 2589, 2590, 2591, 2592, 2593, 2594, 2595, 2596, 2597, 2598, 2599, 2600, 2601, 2602, 2603, 2604, 2605, 2606, 2607, 2608, 2609, 2610, 2611, 2612, 2613, 2614, 2615, 2616, 2617, 2618, 2619, 2620, 2621, 2622, 2623, 2624, 2625, 2626, 2627, 2628, 2629, 2630, 2631, 2632, 2633, 2634, 2635, 2636, 2637, 2638, 2639, 2640, 2641, 2642, 2643, 2644, 2645, 2646, 2647, 2648, 2649, 2650, 2651, 2652, 2653, 2654, 2655, 2656, 2657, 2658, 2659, 2660, 2661, 2662, 2663, 2664, 2665, 2666, 2667, 2668, 2669, 2670, 2671, 2672, 2673, 2674, 2675, 26

Year	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055	2056	2057	2058	2059	2060	2061	2062	2063	2064	2065	2066	2067	2068	2069	2070	2071	2072	2073	2074	2075	2076	2077	2078	2079	2080	2081	2082	2083	2084	2085	2086	2087	2088	2089	2090	2091	2092	2093	2094	2095	2096	2097	2098	2099	2100
1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055	2056	2057	2058	2059	2060	2061	2062	2063	2064	2065	2066	2067	2068	2069	2070	2071	2072	2073	2074	2075	2076	2077	2078	2079	2080	2081	2082	2083	2084	2085	2086	2087	2088	2089	2090	2091	2092	2093	2094	2095	2096	2097	2098	2099	2100	

management of fund divestment in equity assets

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1. *Journal of the American Medical Association*, 1997; 277: 1025-1030.

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7.	\log_{10}	\bar{x}^2
1	0.0000	0.0000
2	0.0043	0.0018
3	0.0086	0.0072
4	0.0129	0.0164
5	0.0173	0.0292
6	0.0216	0.0450
7	0.0259	0.0638
8	0.0302	0.0856
9	0.0345	0.1104
10	0.0388	0.1392
11	0.0431	0.1720
12	0.0474	0.2088
13	0.0517	0.2496
14	0.0560	0.2944
15	0.0603	0.3432
16	0.0646	0.3960
17	0.0689	0.4528
18	0.0732	0.5136
19	0.0775	0.5784
20	0.0818	0.6472
21	0.0861	0.7200
22	0.0904	0.7968
23	0.0947	0.8776
24	0.0990	0.9624
25	0.1033	1.0512
26	0.1076	1.1440
27	0.1119	1.2408
28	0.1162	1.3416
29	0.1205	1.4464
30	0.1248	1.5552
31	0.1291	1.6680
32	0.1334	1.7848
33	0.1377	1.9056
34	0.1420	2.0304
35	0.1463	2.1592
36	0.1506	2.2920
37	0.1549	2.4288
38	0.1592	2.5696
39	0.1635	2.7144
40	0.1678	2.8632
41	0.1721	3.0160
42	0.1764	3.1728
43	0.1807	3.3336
44	0.1850	3.4984
45	0.1893	3.6672
46	0.1936	3.8400
47	0.1979	4.0168
48	0.2022	4.1976
49	0.2065	4.3824
50	0.2108	4.5712
51	0.2151	4.7640
52	0.2194	4.9608
53	0.2237	5.1616
54	0.2280	5.3664
55	0.2323	5.5752
56	0.2366	5.7880
57	0.2409	6.0048
58	0.2452	6.2256
59	0.2495	6.4504
60	0.2538	6.6792
61	0.2581	6.9120
62	0.2624	7.1488
63	0.2667	7.3896
64	0.2710	7.6344
65	0.2753	7.8832
66	0.2796	8.1360
67	0.2839	8.3928
68	0.2882	8.6536
69	0.2925	8.9184
70	0.2968	9.1872
71	0.3011	9.4600
72	0.3054	9.7368
73	0.3097	10.0176
74	0.3140	10.3024
75	0.3183	10.5912
76	0.3226	10.8840
77	0.3269	11.1808
78	0.3312	11.4816
79	0.3355	11.7864
80	0.3398	12.0952
81	0.3441	12.4080
82	0.3484	12.7248
83	0.3527	13.0456
84	0.3570	13.3704
85	0.3613	13.6992
86	0.3656	14.0320
87	0.3699	14.3688
88	0.3742	14.7096
89	0.3785	15.0544
90	0.3828	15.4032
91	0.3871	15.7560
92	0.3914	16.1128
93	0.3957	16.4736
94	0.4000	16.8384
95	0.4043	17.2072
96	0.4086	17.5800
97	0.4129	17.9568
98	0.4172	18.3376
99	0.4215	18.7224
100	0.4258	19.1112

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... and the market portfolio

... and the market portfolio

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... and the market portfolio

Stock	Market Share (%)	Price per share (£)	Capitalisation (£)	Weight (%)
1	10	10	100	10
2	20	20	400	20
3	30	30	900	30
4	40	40	1600	40
5	50	50	2500	50
6	60	60	3600	60
7	70	70	4900	70
8	80	80	6400	80
9	90	90	8100	90
10	100	100	10000	100

... and the market portfolio

... and the market portfolio

1.8 Capital Asset Pricing Model (CAPM)

... and the market portfolio

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E

1. Profit maximization

2. The firm's market

and the firm's market

and the firm's market

3. The firm's market

$$Q = Q_1 + Q_2 + \dots + Q_n$$

$$Q_1 = Q_2$$

$$Q_1 = Q_2$$

and the firm's market

1. The CAPM is a model that describes the relationship between the expected return on an asset and its risk. It is based on the following assumptions:

- Investors are risk-averse and seek to maximize their expected utility.
- There is a single period of time.
- There is a risk-free rate of return, r_f .
- The market portfolio is efficient.
- Assets are normally distributed.

2. The CAPM equation is:

$$E(R_i) = r_f + \beta_i (E(R_M) - r_f)$$

where $E(R_i)$ is the expected return on asset i , r_f is the risk-free rate, β_i is the beta of asset i , and $E(R_M)$ is the expected return on the market portfolio.

3. The beta of an asset is a measure of its systematic risk. It is calculated as the covariance of the asset's return with the market return, divided by the variance of the market return:

$$\beta_i = \frac{\text{Cov}(R_i, R_M)}{\text{Var}(R_M)}$$

4. The CAPM can be used to estimate the cost of capital for a firm. The cost of capital is the minimum return that a firm must earn on its investments to satisfy its investors.

5. The CAPM is a simplification of reality. It ignores many factors that can affect the return on an asset, such as taxes, transaction costs, and market frictions.

6. Despite its limitations, the CAPM remains a widely used tool for estimating the cost of capital and for evaluating investment opportunities.

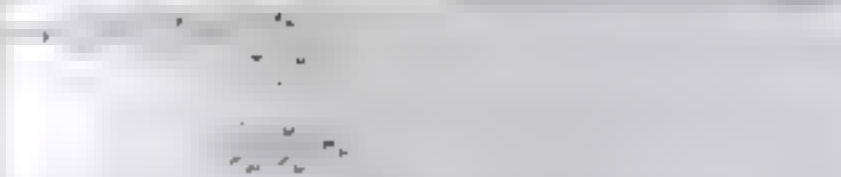


Figure 1.1: The relationship between the expected return on an asset and its risk.

1. The CAPM is a model that describes the relationship between the expected return on an asset and its risk. It is based on the following assumptions:

- Investors are risk-averse and seek to maximize their expected utility.
- There is a single period of time.
- There is a risk-free rate of return, r_f .
- The market portfolio is efficient.
- Assets are normally distributed.

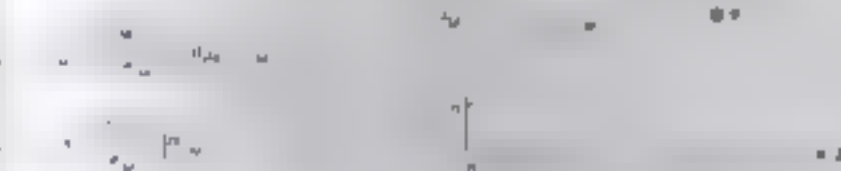


Figure 1.2: The relationship between the expected return on an asset and its risk.

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where $E(R_i)$ is the expected return on asset i , r_f is the risk-free rate, β_i is the beta of asset i , and $E(R_M)$ is the expected return on the market portfolio.

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4. The CAPM can be used to estimate the cost of capital for a firm. The cost of capital is the minimum return that a firm must earn on its investments to satisfy its investors.

Δ: Systematic error Non-systematic: less and usually repeated trip

• $\Delta^2 \varphi = \Delta(\Delta \varphi) = 14$, $\Delta \varphi = 1$, $\varphi = 1$

11. 12. 13.

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$$\frac{1}{2} \left(\frac{1}{2} \right) = \frac{1}{4}$$

4499 1.00

$P_{\text{eff}} = \frac{1}{2} \rho v^2$ $\rho = 1.2 \text{ kg/m}^3$ $v = 10 \text{ m/s}$

• **Intermittent** = not continuous

10. *Explain the importance of the following factors in the selection of a site for a new plant.*

$$\sigma^2 = \beta \sigma_0^2 + \sigma_1^2$$

$$\psi = \psi_{\text{int}}(\sigma_2) = T_{\text{L}} \sigma_{\text{int}}^{-1} \exp(-\sigma_2) \quad \sigma_2 \in L \quad x \in \mathbb{R}$$

the systematic risk

highly correlated with the market

the systematic risk

3.6 Beta of a portfolio

Let us consider a portfolio of assets

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at the time t

at the time t

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Example 3.6

Consider a portfolio of assets

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Solution

For each asset, we calculate the beta

$$\beta_i = \frac{\sigma_{iM}}{\sigma_M^2}$$

$$\beta_1 = \frac{\sigma_{1M}}{\sigma_M^2}$$

$$\beta_2 = \frac{\sigma_{2M}}{\sigma_M^2}$$

$$\beta_3 = \frac{\sigma_{3M}}{\sigma_M^2}$$

the systematic risk

the systematic risk

the systematic risk

the systematic risk

the systematic risk

$$\beta_i = \frac{\sigma_{iM}}{\sigma_M^2}$$

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$$\beta_i = \frac{\sigma_{iM}}{\sigma_M^2} = \frac{\sigma_{iM}}{\sigma_M^2}$$

Now the beta value of each security can be calculated as follows

$$\beta_1 = \frac{\sigma_{1M}}{\sigma_M^2} = \frac{0.11}{(0.52)^2} = 0.41$$

$$\beta_2 = \frac{\sigma_{2M}}{\sigma_M^2} = \frac{0.11}{(0.52)^2} = 0.41$$

$$\beta_3 = \frac{\sigma_{3M}}{\sigma_M^2} = \frac{0.11}{(0.52)^2} = 0.41$$

Now the expected rate of return on Stock 1 and 3 based on SML will be

$$r_1 = 1 + 0.41(0.14 - 0.08) = 1.0324 = 10.324\%$$

$$r_3 = 1 + 0.41(0.14 - 0.08) = 1.0324 = 10.324\%$$

$$r_3 = 1 + 0.41(0.14 - 0.08) = 1.0324 = 10.324\%$$

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Example 2.25

A firm is considering an investment in a new machine. The machine will cost £10,000 and will have a useful life of 5 years. The firm's cost of capital is 10%.

Year	1	2	3	4	5
Revenue	4,000	4,000	4,000	4,000	4,000
Costs	1,000	1,000	1,000	1,000	1,000

Solution

The net present value (NPV) of the investment can be calculated as follows:

NPV = $\sum_{t=1}^5 \frac{C_t}{(1+r)^t} - \frac{I_0}{(1+r)^0}$

$$\text{NPV} = 4,000 \times \frac{1}{1.1} + \frac{4,000}{1.1^2} + \frac{4,000}{1.1^3} + \frac{4,000}{1.1^4} + \frac{4,000}{1.1^5} - \frac{10,000}{1.1^0}$$

Year	1	2	3	4	5
Revenue	4,000	4,000	4,000	4,000	4,000
Costs	1,000	1,000	1,000	1,000	1,000
NPV	3,000	2,909	2,819	2,730	2,641

Example 2.26

A company is considering an investment in a new machine. The machine will cost £10,000 and will have a useful life of 5 years. The firm's cost of capital is 10%.

Solution

The NPV of the investment can be calculated as follows:

$$\text{NPV} = \frac{4,000}{1.1} + \frac{4,000}{1.1^2} + \frac{4,000}{1.1^3} + \frac{4,000}{1.1^4} + \frac{4,000}{1.1^5} - \frac{10,000}{1.1^0}$$

$$\text{NPV} = \frac{4,000}{1.1} + \frac{4,000}{1.1^2} + \frac{4,000}{1.1^3} + \frac{4,000}{1.1^4} + \frac{4,000}{1.1^5} - 10,000$$

Example

The NPV of the investment can be calculated as follows:

$$\text{NPV} = \frac{4,000}{1.1} + \frac{4,000}{1.1^2} + \frac{4,000}{1.1^3} + \frac{4,000}{1.1^4} + \frac{4,000}{1.1^5} - 10,000$$

3.6 Use of CAPM in investment analysis

represent a diversified portfolio of the bond strategies

3.6.1 *Asset and liability of the institution a portfolio*

Dispositions in the asset and liability portfolios are given by

Then the asset and liability portfolios of the institution can be written as

$$A = \sum_{i=1}^n A_i$$

The institution must make the following decision: should the money be kept in cash or be invested in a portfolio of bonds?

At the present time, the institution's money is invested in the portfolio of bonds.

For the portfolio of bonds, the return is given by

$$R = \sum_{i=1}^n R_i$$

is the return on the portfolio of bonds

$$R = \sum_{i=1}^n R_i$$

is the return on the portfolio of bonds

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 24. 4-1-1000
 25. 4-1-1000

27. 4-1-1000 100 100

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1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100

28. 4-1-1000 100 100

3.8. The CAPM as pricing formula

$$P = \frac{E}{r} = \frac{E}{r_f + \beta(r_M - r_f)}$$

we can write the CAPM as pricing formula

$$P = \frac{E}{r_f + \beta(r_M - r_f)}$$

Using the 10% discount rate, the CAPM formula is

$$P = \frac{E}{0.10 + \beta(0.15 - 0.10)}$$

$$P = \frac{E}{0.10 + 0.05\beta}$$

$$P = \frac{E}{0.10 + 0.05\beta}$$

$$P = \frac{E}{0.10 + 0.05\beta}$$

Here, P is a random value stock. It will take any value and it will also follow the CAPM formula. The price at which the stock was purchased by the investor, the pricing formula above is the discounting formula for a deterministic situation that we have already discussed in chapter

the CAPM formula is $P = \frac{E}{r_f + \beta(r_M - r_f)}$

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Example 3.20

Example 3.20: A company is expected to pay a dividend of \$1.00 per share at the end of each year for the next 10 years. The company's cost of capital is 10%. Estimate the expected value of the stock at the end of the 10th year, assuming the company's growth rate is 5%.

Solution

The company's value at the end of the 10th year is the sum of the present value of the dividends and the present value of the stock at the end of the 10th year.

The expected value of the stock at the end of the 10th year is P_{10} .

$$P_{10} = \frac{E_{10}}{r_f + \beta(r_M - r_f)}$$

$$P_{10} = \frac{E_{10}}{0.10 + 0.05\beta}$$

The present value of the stock at the end of the 10th year is P_0 .

$$P_0 = \frac{P_{10}}{1 + r_f}$$

The expected value of the stock at the end of the 10th year is P_{10} .

$$P_{10} = \frac{E_{10}}{0.10 + 0.05\beta}$$

$$P_{10} = \frac{E_{10}}{0.10 + 0.05\beta}$$

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the CAPM formula is $P = \frac{E}{r_f + \beta(r_M - r_f)}$

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Example

Let X denote the following information regarding the expected value of X

Table with 2 columns and 2 rows of data.

Table with 2 columns and 2 rows of data.

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if X is given as

Table with 2 columns and 2 rows of data.

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Table with 2 columns and 2 rows of data.

1912

Let $f(x)$ be a function of x which is continuous in the interval $[a, b]$. Then the function $F(x)$ defined by

$$F(x) = \int_a^x f(t) dt$$

is also continuous in the interval $[a, b]$. To prove this, let $\epsilon > 0$ be given. Since $f(x)$ is continuous, it is bounded. Let M be the maximum value of $|f(x)|$ in the interval $[a, b]$. Then

$$|F(x) - F(y)| = \left| \int_a^x f(t) dt - \int_a^y f(t) dt \right| = \left| \int_x^y f(t) dt \right| \leq \int_x^y |f(t)| dt \leq M |x - y|$$

Choose $\delta = \epsilon / M$. Then if $|x - y| < \delta$, we have $|F(x) - F(y)| < \epsilon$. This proves that $F(x)$ is continuous.

Q.E.D.

1912

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Choose $\delta = \epsilon / M$. Then if $|x - y| < \delta$, we have $|F(x) - F(y)| < \epsilon$. This proves that $F(x)$ is continuous.

Q.E.D.

$$p = \frac{1}{n} \sum_{i=1}^n p_i$$

The first part of the paper is devoted to the study of the properties of the function $f(x)$ defined by the equation $f(x) = \int_0^x f(t) dt$. It is shown that $f(x)$ is a constant function, and its value is determined by the initial condition $f(0)$.

In the second part, we consider the problem of finding the maximum value of the function $f(x)$ on the interval $[0, 1]$. It is shown that the maximum value is attained at $x = 0$ and is equal to $f(0)$.

Finally, we discuss the question of the uniqueness of the solution of the initial value problem. It is shown that the solution is unique if the function $f(x)$ is continuous and satisfies the Lipschitz condition.

1. Accounting Method II SPAs (usually, it can be used for the first round of the audit)

2. $f(x) = \sin(x)$ である。このとき、 $f'(x) = \cos(x)$ である。これは、 $f(x) = \sin(x)$ の導関数が $\cos(x)$ であることである。

19

1. The first step is to identify the problem or question that needs to be answered. This involves understanding the context and the specific requirements of the task.

re-sampled in 2002 at mid-July

1. $\sum_{i=1}^n f_i(x)$ is convex if and only if $f_i(x)$ is convex for all i .

† $\mu_{\text{eff}} = \mu_{\text{eff}}^{\text{eff}} \text{ for } \mu_{\text{eff}}^{\text{eff}} \text{ and } \mu_{\text{eff}}^{\text{eff}} \text{ for } \mu_{\text{eff}}^{\text{eff}}$

Assignment

CONCLUSIONS

- Q. What was the purpose of the investigation?
A. To determine if the defendant was involved in the investigation.
Q. What was the result of the investigation?
A. The defendant was found to be involved in the investigation.

1 Sale Section 1.21
 12 No action 3.21
 1 For valuation
 12 Sale Section 3.21

The first part of the paper is devoted to a discussion of the general theory of the problem. It is shown that the problem is equivalent to a system of linear equations. The system is then solved by the method of least squares. The results are then compared with the results of other authors.

The second part of the paper is devoted to a discussion of the numerical results. It is shown that the numerical results are in good agreement with the theoretical results. The numerical results are then compared with the results of other authors.

The third part of the paper is devoted to a discussion of the conclusions. It is shown that the conclusions are in good agreement with the theoretical results. The conclusions are then compared with the results of other authors.

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The third part of the paper is devoted to a discussion of the conclusions. It is shown that the conclusions are in good agreement with the theoretical results. The conclusions are then compared with the results of other authors.

1. The return on a stock is given by $R_t = \frac{P_t - P_{t-1} + D_t}{P_{t-1}}$ where P_t is the price at time t and D_t is the dividend at time t . The return on a bond is given by $R_t = \frac{P_t - P_{t-1}}{P_{t-1}}$ where P_t is the price at time t .

2. The return on a portfolio is given by $R_t = \frac{P_t - P_{t-1} + D_t}{P_{t-1}}$ where P_t is the price at time t and D_t is the dividend at time t .

Asset	Return	Weight	Portfolio Return
Stock	R_t	w	wR_t
Bond	R_t	$1-w$	$(1-w)R_t$
Portfolio	R_t	1	R_t

3. The return on a portfolio is given by $R_t = \frac{P_t - P_{t-1} + D_t}{P_{t-1}}$ where P_t is the price at time t and D_t is the dividend at time t .

4. The return on a portfolio is given by $R_t = \frac{P_t - P_{t-1} + D_t}{P_{t-1}}$ where P_t is the price at time t and D_t is the dividend at time t .

13. The return on a portfolio is given by $R_t = \frac{P_t - P_{t-1} + D_t}{P_{t-1}}$ where P_t is the price at time t and D_t is the dividend at time t .
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2. The return on a portfolio is given by $R_t = \frac{P_t - P_{t-1} + D_t}{P_{t-1}}$ where P_t is the price at time t and D_t is the dividend at time t .

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5. The return on a portfolio is given by $R_t = \frac{P_t - P_{t-1} + D_t}{P_{t-1}}$ where P_t is the price at time t and D_t is the dividend at time t .

6. The return on a portfolio is given by $R_t = \frac{P_t - P_{t-1} + D_t}{P_{t-1}}$ where P_t is the price at time t and D_t is the dividend at time t .

16. The return on a portfolio is given by $R_t = \frac{P_t - P_{t-1} + D_t}{P_{t-1}}$ where P_t is the price at time t and D_t is the dividend at time t .
17. The return on a portfolio is given by $R_t = \frac{P_t - P_{t-1} + D_t}{P_{t-1}}$ where P_t is the price at time t and D_t is the dividend at time t .
18. The return on a portfolio is given by $R_t = \frac{P_t - P_{t-1} + D_t}{P_{t-1}}$ where P_t is the price at time t and D_t is the dividend at time t .

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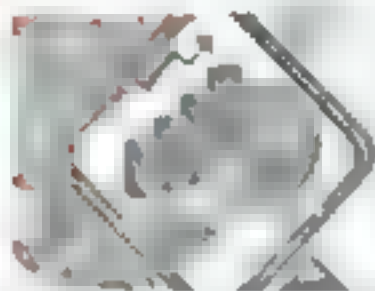
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Derivatives and Options

4.1 Introduction

After going through this chapter, you will be able to

- 1. Understand the basic concept of derivatives.
- 2. Understand the meaning of derivatives.
- 3. Understand the meaning of derivatives.
- 4. Understand the meaning of derivatives.

4.2 Derivatives: Basic Concept

In the world of derivatives, the term 'derivative' refers to a financial instrument whose value is derived from the value of an underlying asset. The underlying asset can be a stock, a bond, a commodity, or a currency. The derivative instrument can be a contract that gives the holder the right to buy or sell the underlying asset at a predetermined price.

4.2.1 Meaning of Derivatives

Before exploring the various types of derivatives, let us first understand the basic concept of derivatives.

(a) A word formed by derivation

History of Derivatives Trading

- 1. The history of derivatives trading dates back to ancient times. In fact, the first derivatives were used by farmers to hedge their crops against price fluctuations.
- 2. In the 17th century, the Dutch East India Company used derivatives to hedge its investments in the East Indies.
- 3. In the 19th century, the London Stock Exchange introduced futures trading, which was a significant milestone in the history of derivatives.
- 4. In the early 20th century, the Chicago Board of Trade (CBOT) introduced standardized futures contracts, which made derivatives trading more accessible to a wider range of investors.
- 5. In the 1970s, the introduction of exchange-traded derivatives, such as futures and options, further popularized derivatives trading.
- 6. In the 1980s, the development of over-the-counter (OTC) derivatives, such as swaps and forwards, expanded the scope of derivatives trading.
- 7. In the 1990s, the introduction of structured products, such as asset-backed securities and collateralized debt obligations, further diversified the derivatives market.
- 8. In the 2000s, the introduction of credit default swaps (CDS) and other credit derivatives expanded the scope of derivatives trading to include credit risk.
- 9. In the 2010s, the introduction of binary options and other exotic derivatives further diversified the derivatives market.
- 10. In the 2020s, the introduction of digital derivatives, such as digital options and digital futures, further diversified the derivatives market.

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4.3 System of Classification

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1. $\frac{1}{2} \log \frac{1}{2}$
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 9. $\frac{1}{2} \log \frac{1}{2}$
 10. $\frac{1}{2} \log \frac{1}{2}$

- **Forward Contracts** are agreements
 - requires tying up capital. There are no intermediate cash flows before settlement
 - subject to default risk.
 - contracts may be difficult to cancel.
- **Forward contracts** are more standardised than swaps
- **Forward contracts** are more negotiable as the future a forward contract could be lower or higher than the forward rate
- **Forward contracts** are more negotiable as the future a forward contract could be lower or higher than the forward rate

$\frac{d}{dt} \left(\frac{1}{r^2} \right) = -\frac{2}{r^3} \frac{dr}{dt}$

\mathbb{Z}^2 is a free \mathbb{Z} -module of rank 2. The elements $(1,0)$ and $(0,1)$ form a basis for \mathbb{Z}^2 . The element $(1,1)$ is not in the span of $(1,0)$ and $(0,1)$ over \mathbb{Z} .

[illegible][illegible]

1. The first part of the document is a letter from the President of the United States to the Secretary of the Navy, dated 18th March 1899. The letter is addressed to the Secretary of the Navy, Department of the Navy, Washington, D.C. The letter is signed by William McKinley, President of the United States.

$$11. \text{ If } \mathbf{A} = \begin{bmatrix} 1 & 2 & 3 \\ 4 & 5 & 6 \\ 7 & 8 & 9 \end{bmatrix} \text{ and } \mathbf{B} = \begin{bmatrix} 9 & 8 & 7 \\ 6 & 5 & 4 \\ 3 & 2 & 1 \end{bmatrix}, \text{ find } \mathbf{A} + \mathbf{B} \text{ and } \mathbf{A} - \mathbf{B}.$$

$\frac{d}{dt} \left(\frac{\partial L}{\partial \dot{x}} \right) = \frac{\partial L}{\partial x}$

[illegible]

[Faint handwritten notes at the bottom of the page]

1. The first part of the document is a list of names and titles, including "The Hon. Mr. Justice" and "The Hon. Mr. Justice".

... 1 2 3 4 5 6 7 8 9 10 11 12

(Faint handwritten notes at the bottom of the page)

$\frac{d}{dt} \left(\frac{1}{r^2} \right) = -\frac{2}{r^3} \frac{dr}{dt}$

1. 19-5-79 last training session of the day

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2) $\lim_{x \rightarrow 0} \frac{1}{x} = \infty$ (if $x \rightarrow 0^+$ then $\frac{1}{x} \rightarrow \infty$; if $x \rightarrow 0^-$ then $\frac{1}{x} \rightarrow -\infty$)

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23

$\sigma = 11.21 \text{ m}^2/\text{s}^2$ $r = 9.11 \times 10^{-31} \text{ kg}$
 $m = 1.675 \times 10^{-27} \text{ kg}$ $\lambda = 2.81 \times 10^{-10} \text{ m}$ $\lambda = 2.81 \text{ \AA}$

1. $\frac{1}{2} \times \frac{1}{2} = \frac{1}{4}$
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 10. $\frac{1}{2} \times \frac{1}{2} = \frac{1}{4}$

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19. $\frac{1}{2} \times \frac{1}{3} = \frac{1}{6}$ and $\frac{1}{6} \times \frac{1}{4} = \frac{1}{24}$ and $\frac{1}{24} \times \frac{1}{5} = \frac{1}{120}$ and $\frac{1}{120} \times \frac{1}{6} = \frac{1}{720}$

[illegible]

අනුරාධපුරයේ පිහිටි මෙම භූමිය බොහෝ දෙනෙකු විසින් සංග්‍රහණය කර ගන්නා අතර එමඟින් වැඩිදුරටත් කළුබඩ ප්‍රදේශයේ වන විවිධ ජීවීන්ගේ සංඛ්‍යාව අඩුවීමක් සිදුවීමට හේතු වේ.

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[illegible]

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and $\mu = 10.279 \pm 0.117$ MeV for $\bar{B} \rightarrow \pi^0 \ell^+ \ell^-$ and $\bar{B} \rightarrow \pi^+ \ell^+ \ell^-$ decays, respectively, with $\ell = e, \mu$.



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2000

Exercise 1.1.1. Let S_t be a stock price and B_t be a bond price.

t	S_t	B_t
0	100	100
1	110	105
2	120	110
3	130	115
4	140	120
5	150	125
6	160	130
7	170	135
8	180	140
9	190	145
10	200	150

1.1.1. Let S_t be a stock price and B_t be a bond price. Find the price of a call option with strike price $K = 110$ and maturity $T = 10$.

1.1.2. Let S_t be a stock price and B_t be a bond price. Find the price of a put option with strike price $K = 110$ and maturity $T = 10$.

1.1.3. Let S_t be a stock price and B_t be a bond price. Find the price of a call option with strike price $K = 110$ and maturity $T = 10$.

1.1.4. Let S_t be a stock price and B_t be a bond price. Find the price of a put option with strike price $K = 110$ and maturity $T = 10$.

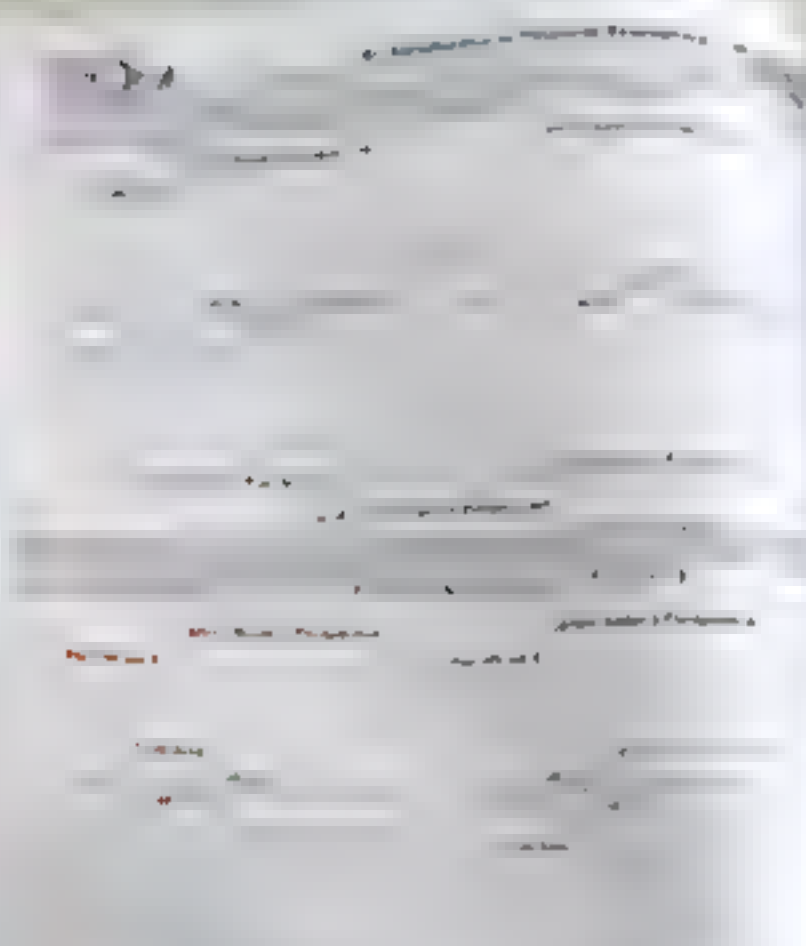


Figure 1. Cross-sections of the pipe for different conditions.

The first part of the paper is devoted to the description of the experimental setup and the results of the measurements. The second part is devoted to the theoretical analysis of the results. The third part is devoted to the discussion of the results. The fourth part is devoted to the conclusion.

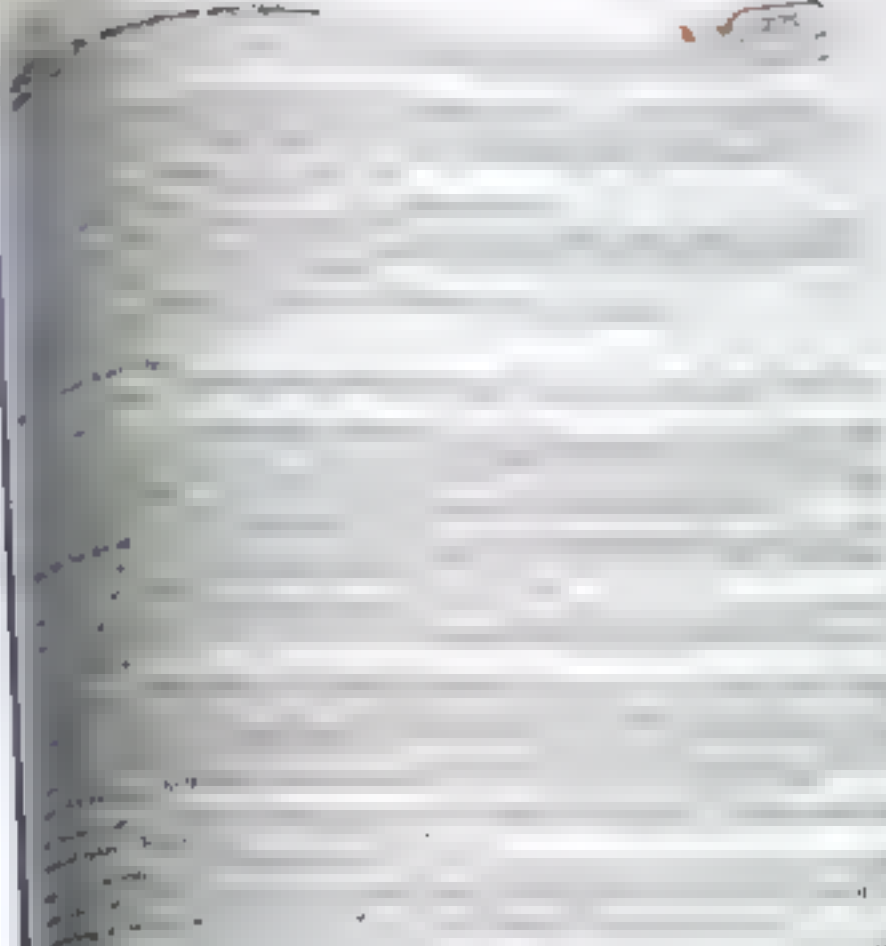


Figure 2. Cross-sections of the pipe for different conditions.

The first part of the paper is devoted to the description of the experimental setup and the results of the measurements. The second part is devoted to the theoretical analysis of the results. The third part is devoted to the discussion of the results. The fourth part is devoted to the conclusion.

1.3 Difference between a physical contract and an option contract

The difference between a physical contract and an option contract is that in a physical contract, the parties are bound to perform the contract regardless of the state of the world. In an option contract, the holder has the right, but not the obligation, to perform the contract. The option holder can choose to exercise the option or not, depending on the state of the world. The option holder is not bound to perform the contract, but the option writer is bound to perform the contract if the option holder exercises the option.

1.3.4 Warrants and Convertibles

Warrants and convertibles are both types of equity securities. Warrants are long-term debt securities that give the holder the right to purchase a certain number of shares of the issuing company at a fixed price. Convertibles are equity securities that can be converted into a certain number of shares of the issuing company at a fixed price. Both warrants and convertibles are typically issued by companies that are looking to raise capital. Warrants are typically issued with a maturity date, while convertibles do not have a maturity date. Both warrants and convertibles can be exercised at any time before their maturity date.

1.3.5 Difference between warrant and convertible

The main difference between a warrant and a convertible is that a warrant is a debt security, while a convertible is an equity security. Warrants are typically issued with a maturity date, while convertibles do not have a maturity date. Both warrants and convertibles can be exercised at any time before their maturity date. Warrants are typically issued by companies that are looking to raise capital, while convertibles are typically issued by companies that are looking to raise capital and also provide a way for investors to convert their investment into equity. Warrants are typically more expensive than convertibles, but they also offer a higher potential return. Convertibles are typically less expensive than warrants, but they also offer a lower potential return.

The main difference between a warrant and a convertible is that a warrant is a debt security, while a convertible is an equity security. Warrants are typically issued with a maturity date, while convertibles do not have a maturity date. Both warrants and convertibles can be exercised at any time before their maturity date. Warrants are typically more expensive than convertibles, but they also offer a higher potential return. Convertibles are typically less expensive than warrants, but they also offer a lower potential return.

1.3.6 Swap

A swap is a financial contract between two parties that involves the exchange of cash flows. The most common type of swap is an interest rate swap, in which the parties agree to exchange a fixed interest rate for a floating interest rate. Swaps are typically used to hedge against interest rate risk. Swaps can also be used to speculate on interest rate movements. Swaps are typically more expensive than other types of financial contracts, but they also offer a higher potential return.

The main difference between a swap and a warrant is that a swap is a financial contract, while a warrant is an equity security. Swaps are typically used to hedge against interest rate risk, while warrants are typically used to raise capital. Swaps are typically more expensive than warrants, but they also offer a higher potential return. Warrants are typically less expensive than swaps, but they also offer a lower potential return.

The main difference between a swap and a convertible is that a swap is a financial contract, while a convertible is an equity security. Swaps are typically used to hedge against interest rate risk, while convertibles are typically used to raise capital. Swaps are typically more expensive than convertibles, but they also offer a higher potential return. Convertibles are typically less expensive than swaps, but they also offer a lower potential return.

The main difference between a swap and a warrant is that a swap is a financial contract, while a warrant is an equity security. Swaps are typically used to hedge against interest rate risk, while warrants are typically used to raise capital. Swaps are typically more expensive than warrants, but they also offer a higher potential return. Warrants are typically less expensive than swaps, but they also offer a lower potential return.

1.3.7 Swap Mechanism

The swap mechanism involves the exchange of cash flows between two parties. The most common type of swap is an interest rate swap, in which the parties agree to exchange a fixed interest rate for a floating interest rate. Swaps are typically used to hedge against interest rate risk. Swaps can also be used to speculate on interest rate movements. Swaps are typically more expensive than other types of financial contracts, but they also offer a higher potential return.

1. The first step in the process of the investigation is to identify the problem. This is done by gathering information about the situation and the people involved. The next step is to define the problem in terms of specific goals and objectives. This is done by asking questions such as "What is the problem?" and "What do we want to achieve?"

4. HDPE shows flaring rate double that of the 3. It is due to the presence of branching in the polymer chains. It is also due to the fact that the HDPE is more crystalline than the LDPE.

[illegible]

sample of an FEA.

On the other hand, if the atomic RBE are supposed to be ~ 1 or if the ionization cross section is taken to be the same as the atomic cross section, then the RBE for the H_2O^+ ion is ~ 10 .

the mid 1980s and after the years of a leader in the 1990s.

4.4 Hedging Strategies

1. Types of Hedging

- There are three types of hedging strategies:
 - Long Hedge:** A company enters a long position in a foreign currency to hedge its future payments in that currency.
 - Example: A US company expects to pay 1 million Euros in 6 months. It enters a long hedge by buying Euros forward.
 - Short Hedge:** A company enters a short position in a foreign currency to hedge its future receipts in that currency.
 - Example: A US company expects to receive 1 million Euros in 6 months. It enters a short hedge by selling Euros forward.
 - Net Hedge:** A company enters both long and short positions in a foreign currency to hedge its net future exposure.
 - Example: A US company expects to receive 1.5 million Euros and pay 0.5 million Euros in 6 months. It enters a net hedge by buying 1 million Euros forward.

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Illustration 4.4

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- Stock sells at ₹ 48
- Strike price of the Call and Put option = ₹ 40
- Interest rate is 10%
- The BD of stock returns is 20%
- Compute the value of Call and Put Option

Solution

- Put = $(K - S) \times e^{-rt}$ (for call)
- No. of days to expiry = 90
 - Value of the Put = ...
 -
 -
 -

Illustration 4.5

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Solution

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13.3 Put-Call Parity Theorem

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Table 4.3

Put-Call Parity Theorem

Call	Put	Stock	Bond
...
...
...

... ..

4.3.4 Sensitivity Analysis

Variable	Value	Delta	Gamma	Vega	Rho	Theta
Stock Price	100	0.50	0.01	0.00	0.00	0.00
Strike Price	100	-0.50	-0.01	0.00	0.00	0.00
Time to Maturity	0.25	0.00	0.00	0.00	0.00	0.00
Volatility	0.20	0.00	0.00	0.00	0.00	0.00
Risk-Free Rate	0.05	0.00	0.00	0.00	0.00	0.00

Delta is the ratio of change in option price to change in price

Delta is the ratio of change in option price to change in price

Delta is the ratio of change in option price to change in price

Delta is the ratio of change in option price to change in price

Delta is the ratio of change in option price to change in price

Where P_c = Call option price, P_p = Put option price, P_s = Stock price

R = Risk free interest rate, P_s = Stock price in dollar price

The Δ and Γ are already defined in section 4.3.2

Gamma is

Gamma is the ratio of change in Delta to change in price

It is the second derivative of option price to price

4.3 Trading Strategies in Option

Long Call

Long Put

Long Call

Long Put

Long Call

Long Put

Long Call

Long Put

Long Call

Long Put

Long Call

Long Put

Long Call

Long Put

Long Call

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Long Call

Long Put

Long Call

Long Put

Figure 1. The effect of the concentration of the initiator on the polymerization of α -methylstyrene in the presence of $\text{Cu}(\text{NO}_3)_2 \cdot 3\text{H}_2\text{O}$ at 50°C .

H... ..

© 2007 Wiley Periodicals, Inc. *J Polym Sci Part A: Polym Chem* 45: 1001–1014, 2007
DOI 10.1002/pola.21474

" "

and budget problems when the Indian stock market showed vulnerability in

n $\frac{1}{2}$ 1 2 3 4 5 6 7 8 9 10

* $\mu_1 = 0.71$, $\mu_2 = 0.81$, $\mu_3 = 0.81$, $\mu_4 = 0.81$, $\mu_5 = 0.81$, $\mu_6 = 0.81$, $\mu_7 = 0.81$, $\mu_8 = 0.81$, $\mu_9 = 0.81$, $\mu_{10} = 0.81$.

$$p_1 = \frac{1}{2} \left(\frac{1}{2} + \frac{1}{2} \right) = \frac{1}{2} \quad \text{and} \quad p_2 = \frac{1}{2} \left(\frac{1}{2} + \frac{1}{2} \right) = \frac{1}{2}$$

Polymers in the oil field

[illegible]

me to [19]. Given that the data are not available, we have to assume that the data are not available.

[illegible][illegible]

the α and β components of the \mathbf{H} vector.

[illegible][illegible]

It is a pleasure to thank the referees for their helpful comments and suggestions.

$\mathbf{p} = (p_1, p_2, \dots, p_n)$

[illegible][illegible]

11

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[illegible]

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Suppose that the price of the stock is \$100 at time $t=0$.

At time $t=1$, the price of the stock is either \$110 or \$90.

At time $t=2$, the price of the stock is either \$121 or \$81.

At time $t=3$, the price of the stock is either \$133 or \$72.75.

At time $t=4$, the price of the stock is either \$146.4 or \$67.5.

At time $t=5$, the price of the stock is either \$160.04 or \$61.5.

At time $t=6$, the price of the stock is either \$174.08 or \$56.25.

At time $t=7$, the price of the stock is either \$188.16 or \$51.75.

At time $t=8$, the price of the stock is either \$202.32 or \$47.25.

At time $t=9$, the price of the stock is either \$216.48 or \$42.75.

At time $t=10$, the price of the stock is either \$230.72 or \$38.25.

At time $t=11$, the price of the stock is either \$245.04 or \$33.75.

At time $t=12$, the price of the stock is either \$259.44 or \$29.25.

At time $t=13$, the price of the stock is either \$273.92 or \$24.75.

At time $t=14$, the price of the stock is either \$288.48 or \$20.25.

At time $t=15$, the price of the stock is either \$303.12 or \$15.75.

At time $t=16$, the price of the stock is either \$317.84 or \$11.25.

At time $t=17$, the price of the stock is either \$332.64 or \$6.75.

At time $t=18$, the price of the stock is either \$347.52 or \$2.25.

At time $t=19$, the price of the stock is either \$362.48 or \$0.75.

At time $t=20$, the price of the stock is either \$377.52 or \$0.25.

At time $t=21$, the price of the stock is either \$392.64 or \$0.75.

At time $t=22$, the price of the stock is either \$407.84 or \$2.25.

At time $t=23$, the price of the stock is either \$423.12 or \$6.75.

At time $t=24$, the price of the stock is either \$438.48 or \$11.25.

At time $t=25$, the price of the stock is either \$453.92 or \$15.75.

At time $t=26$, the price of the stock is either \$469.44 or \$20.25.

At time $t=27$, the price of the stock is either \$485.04 or \$24.75.

3- Derivatives and Options

Suppose that the price of the stock is \$100 at time $t=0$.

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4.4 The American Put Option

4.4 The American Put Option

The value of an American put option at the exercise time is $\max(0, K - S_t)$. The value of this option at time t is the maximum of the immediate exercise value and the value of holding the option. The value of the option at time t is given by the following recursive formula:

$$P_t = \max\left(0, K - S_t, \frac{1}{1+r} \left(p_u P_{t+1}^u + p_d P_{t+1}^d \right)\right)$$

where P_{t+1}^u and P_{t+1}^d are the values of the option at time $t+1$ in the up and down states, respectively. The value of the option at time t is the maximum of the immediate exercise value and the value of holding the option.

Assume that the interest rate is independent of the stock price and that the volatility is constant. The value of the American put option is given by the following recursive formula:

$$P_t = \max\left(0, K - S_t, \frac{1}{1+r} \left(p_u P_{t+1}^u + p_d P_{t+1}^d \right)\right)$$

where P_{t+1}^u and P_{t+1}^d are the values of the option at time $t+1$ in the up and down states, respectively. The value of the option at time t is the maximum of the immediate exercise value and the value of holding the option.

Let Δt be a time interval as % of year. Suppose that a stock is currently traded in the market at ₹ 100. A one-year American call option on the stock with a strike price of ₹ 100 is available at the market. The price of the stock in the two states is ₹ 110 and ₹ 90. The risk-free interest rate is 10%.

Find the price of the two-year American call option.

Mathematical Problems

Mathematical Problems

Let $f(x)$ be a function defined on the interval $[a, b]$. Suppose $f(x)$ is continuous on $[a, b]$ and differentiable on (a, b) . Then, by the Mean Value Theorem, there exists a point c in (a, b) such that

$$f'(c) = \frac{f(b) - f(a)}{b - a}$$

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Table with multiple columns and rows, mostly illegible due to blurriness. Headers are difficult to discern but appear to include financial or accounting terms.

4. State Bank shares is selling at \$20 per share. It has a call option with exercise price of \$25. The call option is selling at \$3. The put option is selling at \$2.
- (a) Should I buy the State Bank shares or the call option? The answer is to buy the call option. The reason is that the call option has a lower cost than the shares and it has a higher payoff.
- (b) Should I buy the State Bank shares or the put option? The answer is to buy the put option. The reason is that the put option has a lower cost than the shares and it has a higher payoff.

5. State Bank shares is selling at \$20 per share. It has a call option with exercise price of \$25. The call option is selling at \$3. The put option is selling at \$2.

(a) Should I buy the State Bank shares or the call option? The answer is to buy the call option. The reason is that the call option has a lower cost than the shares and it has a higher payoff.

(b) Should I buy the State Bank shares or the put option? The answer is to buy the put option. The reason is that the put option has a lower cost than the shares and it has a higher payoff.

6. State Bank shares is selling at \$20 per share. It has a call option with exercise price of \$25. The call option is selling at \$3. The put option is selling at \$2.
- (a) Should I buy the State Bank shares or the call option? The answer is to buy the call option. The reason is that the call option has a lower cost than the shares and it has a higher payoff.
- (b) Should I buy the State Bank shares or the put option? The answer is to buy the put option. The reason is that the put option has a lower cost than the shares and it has a higher payoff.

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$$f_{\text{max}} = 1000 \text{ Hz}$$

The market price of Altabek Bank options is 24% Altabek Bank shares are selling at 24.5. A March 1 call options and put options are available with expiry on April 29 and an exercise price of 14.5. The volatility of the stock price is 19% and the risk-free rate is 5%. Using the Black-Scholes options pricing model, calculate the put option price on March 1.

ഭവാനുഭവം.

$$T = \frac{4\pi^2}{3600} \approx 0.0011 \text{ s}$$

$$\frac{f}{\tau} = \frac{1}{\tau} = \frac{1}{10^{-6}} = 10^6 \text{ s}^{-1}$$

A company is considering a project that will cost £100,000 and will generate an expected cash flow of £120,000 in year 1 and £140,000 in year 2. The company's cost of capital is 10%. The project is being evaluated using the NPV method. The NPV is calculated as follows:

$$NPV = \frac{120,000}{1.10} + \frac{140,000}{1.10^2} - 100,000$$

The NPV is positive, indicating that the project is profitable.

| Year | Cash Flow (£) | Discount Factor | Discounted Cash Flow (£) |
|--------------|---------------|-----------------|--------------------------|
| 0 | -100,000 | 1.000 | -100,000 |
| 1 | 120,000 | 0.909 | 109,080 |
| 2 | 140,000 | 0.826 | 115,640 |
| Total | | | 24,720 |

The NPV is positive, indicating that the project is profitable. The company should accept the project. The NPV is calculated as follows:

$$NPV = \frac{120,000}{1.10} + \frac{140,000}{1.10^2} - 100,000 = 24,720$$

The NPV is positive, indicating that the project is profitable.

| Year | Cash Flow (£) | Discount Factor | Discounted Cash Flow (£) |
|--------------|---------------|-----------------|--------------------------|
| 0 | -100,000 | 1.000 | -100,000 |
| 1 | 120,000 | 0.909 | 109,080 |
| 2 | 140,000 | 0.826 | 115,640 |
| Total | | | 24,720 |

A company measures 2,000,000 barrels of oil every month. Since the price of oil is volatile, the company wants to hedge its oil price risk. At the beginning of each month, the company enters into a long hedge in crude oil futures contracts for 2,000,000 barrels. The company's cost of capital is 10%.

What is the purpose of the long hedge undertaken by the company?

Would the company be able to completely eliminate the price risk of oil? Explain.

The company wants to hedge the risk of oil price increase. The company enters into a long hedge in crude oil futures contracts for 2,000,000 barrels. The company's cost of capital is 10%.

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For price sensitivity to oil price

$$P = 100 - 0.001 \times Q$$

What is a forward contract?

It is a contract between two parties to buy or sell an asset at a predetermined price at a specified time in the future.

It is a contract to buy or sell an asset at a predetermined price at a specified time in the future.

It is a contract to buy or sell an asset at a predetermined price at a specified time in the future.

Under what conditions would you enter a forward contract?

(a) The asset underlying the contract is different from the asset required by the firm.

(b) The market price of the asset is different from the price of the asset required by the firm.

(c) The quantity of the asset required is not an integer multiple of the quantity of the asset available in the market.

1. What type of hedging would be undertaken under the following circumstances?

(a) A firm is exposed to the risk of a change in the price of a commodity it uses in its production process.

(b) A firm is exposed to the risk of a change in the price of a commodity it sells.

(c) A firm is exposed to the risk of a change in the price of a commodity it uses in its production process and it sells the commodity.

(d) A firm is exposed to the risk of a change in the price of a commodity it uses in its production process and it buys the commodity.

(e) A firm is exposed to the risk of a change in the price of a commodity it uses in its production process and it sells the commodity and buys the commodity.

(f) A firm is exposed to the risk of a change in the price of a commodity it uses in its production process and it buys the commodity and sells the commodity.

2. Explain the difference between a forward contract and a futures contract.

(a) A forward contract is a contract to buy or sell an asset at a predetermined price at a specified time in the future.

(b) A futures contract is a contract to buy or sell an asset at a predetermined price at a specified time in the future.

3. Explain the difference between a call option and a put option.

(a) A call option is a contract that gives the holder the right to buy an asset at a predetermined price at a specified time in the future.

What is the difference between a call option and a put option?

(a) A call option is a contract that gives the holder the right to buy an asset at a predetermined price at a specified time in the future.

(b) A put option is a contract that gives the holder the right to sell an asset at a predetermined price at a specified time in the future.

(c) A call option is a contract that gives the holder the right to buy an asset at a predetermined price at a specified time in the future.

(d) A put option is a contract that gives the holder the right to sell an asset at a predetermined price at a specified time in the future.

(e) A call option is a contract that gives the holder the right to buy an asset at a predetermined price at a specified time in the future.

(f) A put option is a contract that gives the holder the right to sell an asset at a predetermined price at a specified time in the future.

(g) A call option is a contract that gives the holder the right to buy an asset at a predetermined price at a specified time in the future.

(h) A put option is a contract that gives the holder the right to sell an asset at a predetermined price at a specified time in the future.

(i) A call option is a contract that gives the holder the right to buy an asset at a predetermined price at a specified time in the future.

(j) A put option is a contract that gives the holder the right to sell an asset at a predetermined price at a specified time in the future.

(k) A call option is a contract that gives the holder the right to buy an asset at a predetermined price at a specified time in the future.

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(v) A put option is a contract that gives the holder the right to sell an asset at a predetermined price at a specified time in the future.

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28. Answer any four of the following

a) Explain the difference between a call option and a put option.

b) Explain the difference between a long call and a short call.

c) Explain the difference between a long put and a short put.

d) Explain the difference between a long call and a long put.

e) Explain the difference between a long call and a short put.

f) Explain the difference between a long put and a short call.

g) Explain the difference between a long call and a long put.

29. Mention the difference between the positions in a call option and a put option.

An option buyer gives the right to exercise the option and will earn no profit unless the stock price rises above the strike price in the case of a call option and falls below the strike price in the case of a put option. The option seller, on the other hand, will earn no profit unless the stock price falls below the strike price in the case of a call option and rises above the strike price in the case of a put option.

30. Mention the circumstances under which an option purchase is exercised.

An option will be exercised only if it is profitable to do so. In the case of a call option, this occurs when the stock price rises above the strike price. In the case of a put option, this occurs when the stock price falls below the strike price.

31. Under what circumstances one would buy a call option?

One would buy a call option if one expects the stock price to rise. This is because the call option will give the buyer the right to buy the stock at a fixed price, which will be profitable if the stock price rises above the strike price. The call option will also be profitable if the stock price falls below the strike price, as the buyer can sell the option at a profit.

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32. Explain the difference between a call option and a put option.

A call option gives the holder the right to buy the underlying asset at a fixed price (the strike price) at any time before the option expires. A put option gives the holder the right to sell the underlying asset at a fixed price (the strike price) at any time before the option expires.

The difference between a call option and a put option is that a call option is profitable when the stock price rises above the strike price, while a put option is profitable when the stock price falls below the strike price.

33. Explain the advantage of writing a covered call over writing a naked call.

Writing a covered call involves selling a call option while holding the underlying asset. This strategy is advantageous because it provides a steady income (the option premium) while the underlying asset is held. If the stock price rises above the strike price, the call option will be exercised, and the writer will receive the strike price for the underlying asset. If the stock price falls below the strike price, the call option will not be exercised, and the writer will keep the option premium. Writing a naked call, on the other hand, involves selling a call option without holding the underlying asset. This strategy is riskier because the writer will have to buy the underlying asset at the market price if the call option is exercised, which could result in a loss if the market price is higher than the strike price.

34. How can one achieve portfolio insurance using put options?

Portfolio insurance can be achieved using put options by buying a portfolio of stocks and selling put options on the stocks. The put options will provide a steady income (the option premium) and will also provide a hedge against a decline in the stock price. If the stock price falls below the strike price of the put options, the put options will be exercised, and the writer will receive the strike price for the underlying assets, which will offset the loss in the value of the stocks.

[illegible]

* *but the calculation of interest rate risk should not be done in isolation and should be done in conjunction with the calculation of credit risk*

2. The message of the book is that hedging is a common practice and that it is not

1. The first step is to identify the problem. In this case, the problem is that the system is not working properly.

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→ Vegetables are a source of fiber. The fiber is beneficial with respect to the fact that it helps to regulate the digestive system and it also helps to control blood sugar levels. The fiber in vegetables is also beneficial for the heart and it helps to lower cholesterol levels.

1703 The Transiting of the comets which pass near the Earth and the of opposition

* ω is a 2 -form on the space of paths with values in the space of the Lie algebra

at $t = 0$ the change in the value of the expected production is 100 compared to the value

$$\lim_{x \rightarrow 0} \frac{1}{x} = \infty$$

Let v = the rate of change to w = also the relationship between the variables of the
 underlying model. $\Delta = \frac{dw}{dw}$

*Delta means the rate of change in the value of the option position with respect to the time.

— 10 —

Key Words

Key Words

Agreement is a relationship between two or more people or groups of people who agree to do something together. It is a mutual understanding or arrangement between two or more parties.

Agree is a verb that means to reach a mutual understanding or arrangement with someone. It is often used in the context of a contract or a deal.

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Agreement is a noun that refers to a mutual understanding or arrangement between two or more parties. It is often used in the context of a contract or a deal.

Agree is a verb that means to reach a mutual understanding or arrangement with someone. It is often used in the context of a contract or a deal.

Option payoff is the difference between the option payoff and the underlying asset price.

A call option is the option to buy an asset.

Put option is the option to sell an asset.

European option is the option that can only be exercised at maturity.

American option is the option that can be exercised at any time.

In the money is the option that is profitable.

At the money is the option that is at the break-even point.

Out of the money is the option that is not profitable.

Implied volatility is the volatility that is implied by the option price.

Volatility is the standard deviation of the return of the underlying asset.

Skewness is the asymmetry of the distribution of the return of the underlying asset.

Kurtosis is the measure of the "fatness" of the distribution of the return of the underlying asset.

Correlation is the measure of the relationship between the return of the underlying asset and the return of another asset.

Arbitrage is the process of making a profit without any risk.

Market equilibrium is the state where the supply and demand are equal.

Market clearing is the process of finding the equilibrium price.

Market efficiency is the state where the market price reflects all available information.

Market segmentation is the state where the market is divided into different segments.

Market integration is the state where the market is unified.

Market liberalization is the process of removing barriers to trade.

Market globalization is the process of increasing international trade.

Market modernization is the process of improving market infrastructure.

with the call and put option payoff functions, the payoff of the call and put option is given by:

Call option payoff is the difference between the option payoff and the underlying asset price.

Put option payoff is the difference between the option payoff and the underlying asset price.

European option is the option that can only be exercised at maturity.

American option is the option that can be exercised at any time.

Assignment

Multiple Choice Questions

1. The payoff of a call option is given by: (See Subsection 4.1.1)
 - a. $\max(S - K, 0)$
 - b. $\max(K - S, 0)$
 - c. $\max(S, K)$
 - d. $\max(K, S)$
2. The payoff of a put option is given by: (See Subsection 4.1.1)
 - a. $\max(S - K, 0)$
 - b. $\max(K - S, 0)$
 - c. $\max(S, K)$
 - d. $\max(K, S)$
3. A call option is the option to: (See Subsection 4.1.1)
 - a. buy the underlying asset
 - b. sell the underlying asset
 - c. buy the underlying asset at a fixed price
 - d. sell the underlying asset at a fixed price
4. A put option is the option to: (See Subsection 4.1.1)
 - a. buy the underlying asset
 - b. sell the underlying asset
 - c. buy the underlying asset at a fixed price
 - d. sell the underlying asset at a fixed price
5. The payoff of a call option is given by: (See Subsection 4.1.1)
 - a. $\max(S - K, 0)$
 - b. $\max(K - S, 0)$
 - c. $\max(S, K)$
 - d. $\max(K, S)$
6. The payoff of a put option is given by: (See Subsection 4.1.1)
 - a. $\max(S - K, 0)$
 - b. $\max(K - S, 0)$
 - c. $\max(S, K)$
 - d. $\max(K, S)$
7. A call option is the option to: (See Subsection 4.1.1)
 - a. buy the underlying asset
 - b. sell the underlying asset
 - c. buy the underlying asset at a fixed price
 - d. sell the underlying asset at a fixed price
8. A put option is the option to: (See Subsection 4.1.1)
 - a. buy the underlying asset
 - b. sell the underlying asset
 - c. buy the underlying asset at a fixed price
 - d. sell the underlying asset at a fixed price
9. The payoff of a call option is given by: (See Subsection 4.1.1)
 - a. $\max(S - K, 0)$
 - b. $\max(K - S, 0)$
 - c. $\max(S, K)$
 - d. $\max(K, S)$
10. The payoff of a put option is given by: (See Subsection 4.1.1)
 - a. $\max(S - K, 0)$
 - b. $\max(K - S, 0)$
 - c. $\max(S, K)$
 - d. $\max(K, S)$
11. A call option is the option to: (See Subsection 4.1.1)
 - a. buy the underlying asset
 - b. sell the underlying asset
 - c. buy the underlying asset at a fixed price
 - d. sell the underlying asset at a fixed price
12. A put option is the option to: (See Subsection 4.1.1)
 - a. buy the underlying asset
 - b. sell the underlying asset
 - c. buy the underlying asset at a fixed price
 - d. sell the underlying asset at a fixed price
13. The payoff of a call option is given by: (See Subsection 4.1.1)
 - a. $\max(S - K, 0)$
 - b. $\max(K - S, 0)$
 - c. $\max(S, K)$
 - d. $\max(K, S)$
14. The payoff of a put option is given by: (See Subsection 4.1.1)
 - a. $\max(S - K, 0)$
 - b. $\max(K - S, 0)$
 - c. $\max(S, K)$
 - d. $\max(K, S)$
15. A call option is the option to: (See Subsection 4.1.1)
 - a. buy the underlying asset
 - b. sell the underlying asset
 - c. buy the underlying asset at a fixed price
 - d. sell the underlying asset at a fixed price
16. A put option is the option to: (See Subsection 4.1.1)
 - a. buy the underlying asset
 - b. sell the underlying asset
 - c. buy the underlying asset at a fixed price
 - d. sell the underlying asset at a fixed price
17. The payoff of a call option is given by: (See Subsection 4.1.1)
 - a. $\max(S - K, 0)$
 - b. $\max(K - S, 0)$
 - c. $\max(S, K)$
 - d. $\max(K, S)$
18. The payoff of a put option is given by: (See Subsection 4.1.1)
 - a. $\max(S - K, 0)$
 - b. $\max(K - S, 0)$
 - c. $\max(S, K)$
 - d. $\max(K, S)$
19. A call option is the option to: (See Subsection 4.1.1)
 - a. buy the underlying asset
 - b. sell the underlying asset
 - c. buy the underlying asset at a fixed price
 - d. sell the underlying asset at a fixed price
20. A put option is the option to: (See Subsection 4.1.1)
 - a. buy the underlying asset
 - b. sell the underlying asset
 - c. buy the underlying asset at a fixed price
 - d. sell the underlying asset at a fixed price

[illegible]

19-94 Antennae Type Classified

1. *Phylogenetic relationships* – The phylogenetic relationships of the studied species were determined using the maximum parsimony method. The analysis was performed using the software package PAUP 4.0 (Felsenstein, 1999). The parsimony analysis was based on 1000 random addition sequence replicates. The search was performed using the heuristic method with 100 random addition sequence replicates. The parsimony analysis was based on 1000 random addition sequence replicates. The search was performed using the heuristic method with 100 random addition sequence replicates.

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$$S_t = S_0 e^{(r - \frac{1}{2}\sigma^2)t + \sigma W_t}$$

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Patterns of Corporate Financing

1980-1989

2.2 Patterns: Sources of Corporate Financing

■ 1980-1989
 ■ 1990-1999
 ■ 2000-2009
 ■ 2010-2019
 ■ 2020-2029

the 1980s, the 1990s, and the 2000s. The 1980s saw a significant increase in the use of debt financing, particularly in the form of leveraged buyouts (LBOs). This was driven by the high interest rates and the desire of companies to reduce their tax burden. The 1990s saw a shift towards equity financing, with companies issuing more common stock and preferred stock. This was partly due to the lower interest rates and the desire to avoid the high costs of debt. The 2000s saw a resurgence in debt financing, particularly in the form of convertible preferred stock and high-yield debt. This was driven by the high interest rates and the desire of companies to raise capital for growth. The 2010s saw a shift back towards equity financing, with companies issuing more common stock and preferred stock. This was partly due to the lower interest rates and the desire to avoid the high costs of debt. The 2020s saw a significant increase in the use of debt financing, particularly in the form of leveraged buyouts (LBOs). This was driven by the high interest rates and the desire of companies to reduce their tax burden.

1. Introduction to the Study of the History of the

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2. Introduction to the Study of the History of the

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As a result of the agency costs, the agency costs of the firm are higher than the costs of the firm if the firm is financed by debt.

The agency costs are the costs of the agency costs of the firm.

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Agency Costs of Debt

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Advantages of Equity Share

1. From the company's point of view

The company will benefit from the equity share in the following ways:

The company will benefit from the equity share in the following ways:

The company will benefit from the equity share in the following ways:

1. The firm's debt is \$100 million.

2. The firm's equity is \$100 million.

3. The firm's total value is \$200 million.

4. The firm's total value is \$200 million.

1. Effects of changes in Preference Share

1. The firm's debt is \$100 million.

2. The firm's equity is \$100 million.

3. The firm's total value is \$200 million.

4. The firm's total value is \$200 million.

5. The firm's total value is \$200 million.

6. The firm's total value is \$200 million.

1. Effects of changes in Preference Share

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24. The firm's total value is \$200 million.

1. The firm's value is a function of its assets and liabilities. The firm's value is the sum of the present value of its assets minus the present value of its liabilities.

2. The firm's value is a function of its assets and liabilities. The firm's value is the sum of the present value of its assets minus the present value of its liabilities. This is the definition of the firm's value.

3. The firm's value is a function of its assets and liabilities. The firm's value is the sum of the present value of its assets minus the present value of its liabilities.

4. The firm's value is a function of its assets and liabilities. The firm's value is the sum of the present value of its assets minus the present value of its liabilities.

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Defendants

7. The firm's value is a function of its assets and liabilities. The firm's value is the sum of the present value of its assets minus the present value of its liabilities.

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12. The firm's value is a function of its assets and liabilities. The firm's value is the sum of the present value of its assets minus the present value of its liabilities.

| Table 1: Financial Data | | | | | | | | | |
|-------------------------|--------|-------------|--------|------|--------|------|--------|------|--------|
| Year | Assets | Liabilities | Equity | Debt | Equity | Debt | Equity | Debt | Equity |
| 1990 | 100 | 50 | 50 | 50 | 50 | 50 | 50 | 50 | 50 |
| 1991 | 110 | 55 | 55 | 55 | 55 | 55 | 55 | 55 | 55 |
| 1992 | 120 | 60 | 60 | 60 | 60 | 60 | 60 | 60 | 60 |
| 1993 | 130 | 65 | 65 | 65 | 65 | 65 | 65 | 65 | 65 |
| 1994 | 140 | 70 | 70 | 70 | 70 | 70 | 70 | 70 | 70 |
| 1995 | 150 | 75 | 75 | 75 | 75 | 75 | 75 | 75 | 75 |
| 1996 | 160 | 80 | 80 | 80 | 80 | 80 | 80 | 80 | 80 |
| 1997 | 170 | 85 | 85 | 85 | 85 | 85 | 85 | 85 | 85 |
| 1998 | 180 | 90 | 90 | 90 | 90 | 90 | 90 | 90 | 90 |
| 1999 | 190 | 95 | 95 | 95 | 95 | 95 | 95 | 95 | 95 |
| 2000 | 200 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |

Table 2: Financial Data

Assets: 100, 110, 120, 130, 140, 150, 160, 170, 180, 190, 200

Liabilities: 50, 55, 60, 65, 70, 75, 80, 85, 90, 95, 100

Equity: 50, 55, 60, 65, 70, 75, 80, 85, 90, 95, 100

Debt: 50, 55, 60, 65, 70, 75, 80, 85, 90, 95, 100

Table 3: Financial Data

Assets: 100, 110, 120, 130, 140, 150, 160, 170, 180, 190, 200

Liabilities: 50, 55, 60, 65, 70, 75, 80, 85, 90, 95, 100

Equity: 50, 55, 60, 65, 70, 75, 80, 85, 90, 95, 100

Debt: 50, 55, 60, 65, 70, 75, 80, 85, 90, 95, 100

| | | |
|---|---------------------------------|---------------------------------|
| $\frac{1}{m_1}$ | $\frac{1}{m_2}$ | $\frac{1}{m_3}$ |
| $\frac{1}{m_1} + \frac{1}{m_2}$ | $\frac{1}{m_2} + \frac{1}{m_3}$ | $\frac{1}{m_1} + \frac{1}{m_3}$ |
| $\frac{1}{m_1} + \frac{1}{m_2} + \frac{1}{m_3}$ | | |

1980 1981 1982 1983 1984 1985

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$$\begin{array}{ccccccc} \text{re } h^{-1} & \cdot & \frac{\pi}{2} & & w = 1 & & |t_{\max}| = 1, t_{\min} = -1 \\ & & & \parallel & w & & \\ & & & & & & \end{array}$$

0001-7748/96/0005-0000\$05.00/0

$\rho^d = \frac{1}{2} \left(\frac{1}{\rho^d} + \frac{1}{\rho^d} \right) = \frac{1}{2} \left(\frac{1}{\rho^d} + \frac{1}{\rho^d} \right)$

$\frac{1}{2} \left(\frac{1}{2} \right) = \frac{1}{4}$

[illegible]

$\frac{1}{2} \left(\frac{1}{2} \right) = \frac{1}{4}$

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1. $\frac{1}{2} \log 2$ is the entropy of the source.

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for $\lambda \in \mathbb{R}$ and $\mu \in \mathbb{R}$ such that $\lambda + \mu = 1$.

સા. નં. ૧૨૭૩/૨૦૧૬ તા. ૨૦/૦૮/૨૦૧૬

[illegible]

ד' = תורת הדין ד' = תורת הדין ד' = תורת הדין ד' = תורת הדין ד' = תורת הדין

(continued)

the firm's production function, which is a function of the firm's inputs, x , and its technology, z . The firm's production function is written as $y = f(x, z)$, where y is the firm's output, x is the firm's inputs, and z is the firm's technology. The firm's production function is a function of the firm's inputs, x , and its technology, z . The firm's production function is written as $y = f(x, z)$, where y is the firm's output, x is the firm's inputs, and z is the firm's technology.

The firm's production function is a function of the firm's inputs, x , and its technology, z . The firm's production function is written as $y = f(x, z)$, where y is the firm's output, x is the firm's inputs, and z is the firm's technology. The firm's production function is a function of the firm's inputs, x , and its technology, z . The firm's production function is written as $y = f(x, z)$, where y is the firm's output, x is the firm's inputs, and z is the firm's technology.

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6th Night, Wednesday, 20th November 1990. The weather was very cold and the wind was very strong. The temperature was about -10°C. The wind was from the north and it was very strong. The sky was very cloudy and it was raining. The rain was very heavy and it was falling very fast. The rain was very cold and it was falling very fast. The rain was very cold and it was falling very fast.

The first part of the book discusses the importance of understanding the economic environment. It covers the basic principles of economics, including supply and demand, and how they interact in a market. The author emphasizes that a solid foundation in these concepts is essential for anyone studying economics.

Next, the book explores the role of government in the economy. It discusses how government policies can influence economic growth and stability. The author argues that while government intervention is necessary, it must be carefully managed to avoid negative consequences.

The third section of the book focuses on the financial system. It examines the role of banks, interest rates, and the money supply. The author explains how these factors affect the overall health of the economy and how they can be used as tools for economic policy.

Chapter 2: The Role of Government

The second part of the book delves into the specific functions of government. It discusses how government spending and taxation can be used to stimulate economic activity. The author also addresses the challenges of balancing the budget and the impact of fiscal policy on the economy.

In the third part, the book discusses the role of government in providing public goods and services. It examines the challenges of financing these services and the importance of efficient government operations. The author argues that a well-run government is essential for a thriving economy.

The fourth part of the book discusses the role of government in regulating the economy. It examines the impact of government regulations on business and industry. The author argues that while regulations are necessary to protect consumers and workers, they must be designed to minimize the burden on businesses.

Chapter 3: The Financial System

- 1. The role of banks in the financial system.
- 2. The importance of interest rates in determining the cost of borrowing.
- 3. The role of the money supply in controlling inflation.
- 4. The impact of government policy on the financial system.
- 5. The challenges of managing the financial system during a crisis.
- 6. The role of the Federal Reserve in maintaining financial stability.
- 7. The importance of sound financial management for businesses.
- 8. The role of government in regulating the financial system.
- 9. The impact of global financial markets on the domestic economy.
- 10. The challenges of managing the financial system in a global context.

The third part of the book discusses the role of the market in the economy. It examines how the forces of supply and demand determine prices and allocate resources. The author argues that a free market is essential for economic growth and innovation.

In the fourth part, the book discusses the role of competition in the market. It examines how competition drives businesses to improve their products and services. The author argues that competition is a key factor in the success of a market economy.

The fifth part of the book discusses the role of innovation in the market. It examines how new technologies and products drive economic growth. The author argues that innovation is a key driver of long-term economic development.

The sixth part of the book discusses the role of government in supporting the market. It examines how government policies can encourage innovation and competition. The author argues that a supportive government is essential for a thriving market economy.

Chapter 5: The Role of the Consumer

- 1. The role of the consumer in the economy.
- 2. The importance of consumer choice in determining market outcomes.
- 3. The role of consumer behavior in shaping the market.
- 4. The impact of government policy on consumer behavior.
- 5. The challenges of managing the market during a crisis.
- 6. The role of the consumer in maintaining market stability.
- 7. The importance of sound financial management for consumers.
- 8. The role of government in regulating the market.
- 9. The impact of global market trends on the domestic economy.
- 10. The challenges of managing the market in a global context.

Financial Markets and Instruments

1. Introduction

| Market | | | Instrument | | |
|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|
| Asset | Liability | Equity | Asset | Liability | Equity |
| 1. Government bonds | 1. Government bonds | 1. Government bonds | 1. Government bonds | 1. Government bonds | 1. Government bonds |
| 2. Corporate bonds | 2. Corporate bonds | 2. Corporate bonds | 2. Corporate bonds | 2. Corporate bonds | 2. Corporate bonds |
| 3. Treasury bills | 3. Treasury bills | 3. Treasury bills | 3. Treasury bills | 3. Treasury bills | 3. Treasury bills |
| 4. Commercial paper | 4. Commercial paper | 4. Commercial paper | 4. Commercial paper | 4. Commercial paper | 4. Commercial paper |
| 5. Money market funds | 5. Money market funds | 5. Money market funds | 5. Money market funds | 5. Money market funds | 5. Money market funds |
| 6. Municipal bonds | 6. Municipal bonds | 6. Municipal bonds | 6. Municipal bonds | 6. Municipal bonds | 6. Municipal bonds |
| 7. International bonds | 7. International bonds | 7. International bonds | 7. International bonds | 7. International bonds | 7. International bonds |
| 8. Structured finance | 8. Structured finance | 8. Structured finance | 8. Structured finance | 8. Structured finance | 8. Structured finance |
| 9. Derivatives | 9. Derivatives | 9. Derivatives | 9. Derivatives | 9. Derivatives | 9. Derivatives |
| 10. Hedge funds | 10. Hedge funds | 10. Hedge funds | 10. Hedge funds | 10. Hedge funds | 10. Hedge funds |

The financial system is a complex network of institutions and markets that facilitate the flow of capital. It includes a variety of instruments, each with its own characteristics and risks. Understanding these instruments is crucial for making informed financial decisions.

1. **Government bonds** are issued by the government and are considered low-risk investments. They provide a steady stream of income and are often used as a benchmark for interest rates.

2. **Corporate bonds** are issued by corporations and offer higher yields than government bonds. However, they also carry more risk, as the issuer may default on the debt.

3. **Treasury bills** are short-term government securities that are sold at a discount and mature at face value. They are highly liquid and are often used for short-term cash management.

4. **Commercial paper** is a short-term debt instrument issued by corporations. It is typically used to finance working capital needs and is sold at a discount.

5. **Money market funds** are mutual funds that invest in short-term debt instruments. They provide a way for investors to participate in the money market and are often used for cash management.

6. **Municipal bonds** are issued by state and local governments. They often offer tax advantages and are used to finance public infrastructure projects.

7. **International bonds** are issued by foreign governments or corporations. They provide exposure to foreign markets and currencies.

8. **Structured finance** involves the creation of new securities from existing assets. This can be a complex process, but it allows for the creation of securities with specific risk and return profiles.

9. **Derivatives** are financial instruments whose value is derived from the value of an underlying asset. They include options, futures, and swaps, and are used for hedging and speculation.

10. **Hedge funds** are private investment funds that use a variety of strategies to generate returns. They are often more aggressive than traditional funds and may use leverage.

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9. 1972-1973, 1974-1975, 1976-1977, 1978-1979, 1980-1981, 1982-1983, 1984-1985, 1986-1987, 1988-1989, 1990-1991, 1992-1993, 1994-1995, 1996-1997, 1998-1999, 2000-2001, 2002-2003, 2004-2005, 2006-2007, 2008-2009, 2010-2011, 2012-2013, 2014-2015, 2016-2017, 2018-2019, 2020-2021, 2022-2023, 2024-2025, 2026-2027, 2028-2029, 2030-2031, 2032-2033, 2034-2035, 2036-2037, 2038-2039, 2040-2041, 2042-2043, 2044-2045, 2046-2047, 2048-2049, 2050-2051, 2052-2053, 2054-2055, 2056-2057, 2058-2059, 2060-2061, 2062-2063, 2064-2065, 2066-2067, 2068-2069, 2070-2071, 2072-2073, 2074-2075, 2076-2077, 2078-2079, 2080-2081, 2082-2083, 2084-2085, 2086-2087, 2088-2089, 2090-2091, 2092-2093, 2094-2095, 2096-2097, 2098-2099, 2100-2101, 2102-2103, 2104-2105, 2106-2107, 2108-2109, 2110-2111, 2112-2113, 2114-2115, 2116-2117, 2118-2119, 2120-2121, 2122-2123, 2124-2125, 2126-2127, 2128-2129, 2130-2131, 2132-2133, 2134-2135, 2136-2137, 2138-2139, 2140-2141, 2142-2143, 2144-2145, 2146-2147, 2148-2149, 2150-2151, 2152-2153, 2154-2155, 2156-2157, 2158-2159, 2160-2161, 2162-2163, 2164-2165, 2166-2167, 2168-2169, 2170-2171, 2172-2173, 2174-2175, 2176-2177, 2178-2179, 2180-2181, 2182-2183, 2184-2185, 2186-2187, 2188-2189, 2190-2191, 2192-2193, 2194-2195, 2196-2197, 2198-2199, 2200-2201, 2202-2203, 2204-2205, 2206-2207, 2208-2209, 2210-2211, 2212-2213, 2214-2215, 2216-2217, 2218-2219, 2220-2221, 2222-2223, 2224-2225, 2226-2227, 2228-2229, 2230-2231, 2232-2233, 2234-2235, 2236-2237, 2238-2239, 2240-2241, 2242-2243, 2244-2245, 2246-2247, 2248-2249, 2250-2251, 2252-2253, 2254-2255, 2256-2257, 2258-2259, 2260-2261, 2262-2263, 2264-2265, 2266-2267, 2268-2269, 2270-2271, 2272-2273, 2274-2275, 2276-2277, 2278-2279, 2280-2281, 2282-2283, 2284-2285, 2286-2287, 2288-2289, 2290-2291, 2292-2293, 2294-2295, 2296-2297, 2298-2299, 2300-2301, 2302-2303, 2304-2305, 2306-2307, 2308-2309, 2310-2311, 2312-2313, 2314-2315, 2316-2317, 2318-2319, 2320-2321, 2322-2323, 2324-2325, 2326-2327, 2328-2329, 2330-2331, 2332-2333, 2334-2335, 2336-2337, 2338-2339, 2340-2341, 2342-2343, 2344-2345, 2346-2347, 2348-2349, 2350-2351, 2352-2353, 2354-2355, 2356-2357, 2358-2359, 2360-2361, 2362-2363, 2364-2365, 2366-2367, 2368-2369, 2370-2371, 2372-2373, 2374-2375, 2376-2377, 2378-2379, 2380-2381, 2382-2383, 2384-2385, 2386-2387, 2388-2389, 2390-2391, 2392-2393, 2394-2395, 2396-2397, 2398-2399, 2400-2401, 2402-2403, 2404-2405, 2406-2407, 2408-2409, 2410-2411, 2412-2413, 2414-2415, 2416-2417, 2418-2419, 2420-2421, 2422-2423, 2424-2425, 2426-2427, 2428-2429, 2430-2431, 2432-2433, 2434-2435, 2436-2437, 2438-2439, 2440-2441, 2442-2443, 2444-2445, 2446-2447, 2448-2449, 2450-2451, 2452-2453, 2454-2455, 2456-2457, 2458-2459, 2460-2461, 2462-2463, 2464-2465, 2466-2467, 2468-2469, 2470-2471, 2472-2473, 2474-2475, 2476-2477, 2478-2479, 2480-2481, 2482-2483, 2484-2485, 2486-2487, 2488-2489, 2490-2491, 2492-2493, 2494-2495, 2496-2497, 2498-2499, 2500-2501, 2502-2503, 2504-2505, 2506-2507, 2508-2509, 2510-2511, 2512-2513, 2514-2515, 2516-2517, 2518-2519, 2520-2521, 2522-2523, 2524-2525, 2526-2527, 2528-2529, 2530-2531, 2532-2533, 2534-2535, 2536-2537, 2538-2539, 2540-2541, 2542-2543, 2544-2545, 2546-2547, 2548-2549, 2550-2551, 2552-2553, 2554-2555, 2556-2557, 2558-2559, 2560-2561, 2562-2563, 2564-2565, 2566-2567, 2568-2569, 2570-2571, 2572-2573, 2574-2575, 2576-2577, 2578-2579, 2580-2581, 2582-2583, 2584-2585, 2586-2587, 2588-2589, 2590-2591, 2592-2593, 2594-2595, 2596-2597, 2598-2599, 2600-2601, 2602-2603, 2604-2605, 2606-2607, 2608-2609, 2610-2611, 2612-2613, 2614-2615, 2616-2617, 2618-2619, 2620-2621, 2622-2623, 2624-2625, 2626-2627, 2628-2629, 2630-2631, 2632-2633, 2634-2635, 2636-2637, 2638-2639, 2640-2641, 2642-2643, 2644-2645, 2646-2647, 2648-2649, 2650-2651, 2652-2653, 2654-2655, 2656-2657, 2658-2659, 2660-2661, 2662-2663, 2664-2665, 2666-2667, 2668-2669, 2670-2671, 2672-2673, 2674-2675, 2676-2677, 2678-2679, 2680-2681, 2682-2683, 2684-2685, 2686-2687, 2688-2689, 2690-2691, 2692-2693, 2694-2695, 2696-2697, 2698-2699, 2700-2701, 2702-2703, 2704-2705, 2706-2707, 2708-2709, 2710-2711, 2712-2713, 2714-2715,

2. July 1984 with a 1000 m depth interval between 11 and 12 m water for the
 3. 10 m, 12 m, 14 m, 16 m, 18 m, 20 m, 22 m, 24 m, 26 m, 28 m, 30 m, 32 m, 34 m, 36 m, 38 m, 40 m, 42 m, 44 m, 46 m, 48 m, 50 m, 52 m, 54 m, 56 m, 58 m, 60 m, 62 m, 64 m, 66 m, 68 m, 70 m, 72 m, 74 m, 76 m, 78 m, 80 m, 82 m, 84 m, 86 m, 88 m, 90 m, 92 m, 94 m, 96 m, 98 m, 100 m, 102 m, 104 m, 106 m, 108 m, 110 m, 112 m, 114 m, 116 m, 118 m, 120 m, 122 m, 124 m, 126 m, 128 m, 130 m, 132 m, 134 m, 136 m, 138 m, 140 m, 142 m, 144 m, 146 m, 148 m, 150 m, 152 m, 154 m, 156 m, 158 m, 160 m, 162 m, 164 m, 166 m, 168 m, 170 m, 172 m, 174 m, 176 m, 178 m, 180 m, 182 m, 184 m, 186 m, 188 m, 190 m, 192 m, 194 m, 196 m, 198 m, 200 m, 202 m, 204 m, 206 m, 208 m, 210 m, 212 m, 214 m, 216 m, 218 m, 220 m, 222 m, 224 m, 226 m, 228 m, 230 m, 232 m, 234 m, 236 m, 238 m, 240 m, 242 m, 244 m, 246 m, 248 m, 250 m, 252 m, 254 m, 256 m, 258 m, 260 m, 262 m, 264 m, 266 m, 268 m, 270 m, 272 m, 274 m, 276 m, 278 m, 280 m, 282 m, 284 m, 286 m, 288 m, 290 m, 292 m, 294 m, 296 m, 298 m, 300 m, 302 m, 304 m, 306 m, 308 m, 310 m, 312 m, 314 m, 316 m, 318 m, 320 m, 322 m, 324 m, 326 m, 328 m, 330 m, 332 m, 334 m, 336 m, 338 m, 340 m, 342 m, 344 m, 346 m, 348 m, 350 m, 352 m, 354 m, 356 m, 358 m, 360 m, 362 m, 364 m, 366 m, 368 m, 370 m, 372 m, 374 m, 376 m, 378 m, 380 m, 382 m, 384 m, 386 m, 388 m, 390 m, 392 m, 394 m, 396 m, 398 m, 400 m, 402 m, 404 m, 406 m, 408 m, 410 m, 412 m, 414 m, 416 m, 418 m, 420 m, 422 m, 424 m, 426 m, 428 m, 430 m, 432 m, 434 m, 436 m, 438 m, 440 m, 442 m, 444 m, 446 m, 448 m, 450 m, 452 m, 454 m, 456 m, 458 m, 460 m, 462 m, 464 m, 466 m, 468 m, 470 m, 472 m, 474 m, 476 m, 478 m, 480 m, 482 m, 484 m, 486 m, 488 m, 490 m, 492 m, 494 m, 496 m, 498 m, 500 m, 502 m, 504 m, 506 m, 508 m, 510 m, 512 m, 514 m, 516 m, 518 m, 520 m, 522 m, 524 m, 526 m, 528 m, 530 m, 532 m, 534 m, 536 m, 538 m, 540 m, 542 m, 544 m, 546 m, 548 m, 550 m, 552 m, 554 m, 556 m, 558 m, 560 m, 562 m, 564 m, 566 m, 568 m, 570 m, 572 m, 574 m, 576 m, 578 m, 580 m, 582 m, 584 m, 586 m, 588 m, 590 m, 592 m, 594 m, 596 m, 598 m, 600 m, 602 m, 604 m, 606 m, 608 m, 610 m, 612 m, 614 m, 616 m, 618 m, 620 m, 622 m, 624 m, 626 m, 628 m, 630 m, 632 m, 634 m, 636 m, 638 m, 640 m, 642 m, 644 m, 646 m, 648 m, 650 m, 652 m, 654 m, 656 m, 658 m, 660 m, 662 m, 664 m, 666 m, 668 m, 670 m, 672 m, 674 m, 676 m, 678 m, 680 m, 682 m, 684 m, 686 m, 688 m, 690 m, 692 m, 694 m, 696 m, 698 m, 700 m, 702 m, 704 m, 706 m, 708 m, 710 m, 712 m, 714 m, 716 m, 718 m, 720 m, 722 m, 724 m, 726 m, 728 m, 730 m, 732 m, 734 m, 736 m, 738 m, 740 m, 742 m, 744 m, 746 m, 748 m, 750 m, 752 m, 754 m, 756 m, 758 m, 760 m, 762 m, 764 m, 766 m, 768 m, 770 m, 772 m, 774 m, 776 m, 778 m, 780 m, 782 m, 784 m, 786 m, 788 m, 790 m, 792 m, 794 m, 796 m, 798 m, 800 m, 802 m, 804 m, 806 m, 808 m, 810 m, 812 m, 814 m, 816 m, 818 m, 820 m, 822 m, 824 m, 826 m, 828 m, 830 m, 832 m, 834 m, 836 m, 838 m, 840 m, 842 m, 844 m, 846 m, 848 m, 850 m, 852 m, 854 m, 856 m, 858 m, 860 m, 862 m, 864 m, 866 m, 868 m, 870 m, 872 m, 874 m, 876 m, 878 m, 880 m, 882 m, 884 m, 886 m, 888 m, 890 m, 892 m, 894 m, 896 m, 898 m, 900 m, 902 m, 904 m, 906 m, 908 m, 910 m, 912 m, 914 m, 916 m, 918 m, 920 m, 922 m, 924 m, 926 m, 928 m, 930 m, 932 m, 934 m, 936 m, 938 m, 940 m, 942 m, 944 m, 946 m, 948 m, 950 m, 952 m, 954 m, 956 m, 958 m, 960 m, 962 m, 964 m, 966 m, 968 m, 970 m, 972 m, 974 m, 976 m, 978 m, 980 m, 982 m, 984 m, 986 m, 988 m, 990 m, 992 m, 994 m, 996 m, 998 m, 1000 m, 1002 m, 1004 m, 1006 m, 1008 m, 1010 m, 1012 m, 1014 m, 1016 m, 1018 m, 1020 m, 1022 m, 1024 m, 1026 m, 1028 m, 1030 m, 1032 m, 1034 m, 1036 m, 1038 m, 1040 m, 1042 m, 1044 m, 1046 m, 1048 m, 1050 m, 1052 m, 1054 m, 1056 m, 1058 m, 1060 m, 1062 m, 1064 m, 1066 m, 1068 m, 1070 m, 1072 m, 1074 m, 1076 m, 1078 m, 1080 m, 1082 m, 1084 m, 1086 m, 1088 m, 1090 m, 1092 m, 1094 m, 1096 m, 1098 m, 1100 m, 1102 m, 1104 m, 1106 m, 1108 m, 1110 m, 1112 m, 1114 m, 1116 m, 1118 m, 1120 m, 1122 m, 1124 m, 1126 m, 1128 m, 1130 m, 1132 m, 1134 m, 1136 m, 1138 m, 1140 m, 1142 m, 1144 m, 1146 m, 1148 m, 1150 m, 1152 m, 1154 m, 1156 m, 1158 m, 1160 m, 1162 m, 1164 m, 1166 m, 1168 m, 1170 m, 1172 m, 1174 m, 1176 m, 1178 m, 1180 m, 1182 m, 1184 m, 1186 m, 1188 m, 1190 m, 1192 m, 1194 m, 1196 m, 1198 m, 1200 m, 1202 m, 1204 m, 1206 m, 1208 m, 1210 m, 1212 m, 1214 m, 1216 m, 1218 m, 1220 m, 1222 m, 1224 m, 1226 m, 1228 m, 1230 m, 1232 m, 1234 m, 1236 m, 1238 m, 1240 m, 1242 m, 1244 m, 1246 m, 1248 m, 1250 m, 1252 m, 1254 m, 1256 m, 1258 m, 1260 m, 1262 m, 1264 m, 1266 m, 1268 m, 1270 m, 1272 m, 1274 m, 1276 m, 1278 m, 1280 m, 1282 m, 1284 m, 1286 m, 1288 m, 1290 m, 1292 m, 1294 m, 1296 m, 1298 m, 1300 m, 1302 m, 1304 m, 1306 m, 1308 m, 1310 m, 1312 m, 1314 m, 1316 m, 1318 m, 1320 m, 1

1. $u = 0$ if $\alpha = 0$ and $\beta = 0$. If $\alpha \neq 0$ and $\beta \neq 0$, then $u = \frac{\alpha}{\beta}$ if $\alpha < \beta$ and $u = 1$ if $\alpha \geq \beta$. If $\alpha = 0$ and $\beta \neq 0$, then $u = 0$. If $\alpha \neq 0$ and $\beta = 0$, then $u = 1$.

[illegible][illegible][illegible]

The
... ..
... ..

for $\alpha = 1$ and $\alpha = 2$ are shown in Figure 1. The curves for $\alpha = 1$ and $\alpha = 2$ are shown in Figure 1. The curves for $\alpha = 1$ and $\alpha = 2$ are shown in Figure 1.

2. (a) $\frac{1}{2}$ (b) $\frac{1}{2}$ (c) $\frac{1}{2}$ (d) $\frac{1}{2}$ (e) $\frac{1}{2}$ (f) $\frac{1}{2}$ (g) $\frac{1}{2}$ (h) $\frac{1}{2}$ (i) $\frac{1}{2}$ (j) $\frac{1}{2}$ (k) $\frac{1}{2}$ (l) $\frac{1}{2}$ (m) $\frac{1}{2}$ (n) $\frac{1}{2}$ (o) $\frac{1}{2}$ (p) $\frac{1}{2}$ (q) $\frac{1}{2}$ (r) $\frac{1}{2}$ (s) $\frac{1}{2}$ (t) $\frac{1}{2}$ (u) $\frac{1}{2}$ (v) $\frac{1}{2}$ (w) $\frac{1}{2}$ (x) $\frac{1}{2}$ (y) $\frac{1}{2}$ (z) $\frac{1}{2}$

एन वन एन वे इन्स्युअर फ़िनांसियल

* (1) * (2) suggest we find a large number of ships which are linguistically different. The following are the most important features of these ships.

g) second - finding Δ as experimental measure of luminosity by way of the ratio property in d - based instead of measuring cross-section in the detector.

4. The words "unlawful discrimination" are in the title which gives the right
to the award in question. It is the word "unlawful" which gives the award

b-7c

5. When the company has accumulated enough of stock, the rule of holding the stock is that the company will not be liable for the stock if the stock is not held for a period of 180 days.

1. The following information is available for the year ended 31/12/2019:

1.1

1.2

1.3

1.4

1.5

1.6

1.7

1.8

1.9

1.10

1.11

1.12

1.13

1. The following information is available for the year ended 31/12/2019:

1.1

1.2

1.3

1.4

1.5

1.6

1.7

1.8

1.9

1.10

1.11

1.12

1.13

1.14

2.4 1.7

2007

It is a basic strategy for in the gradual nature of the capital gains
in the formula applying the average purchase price and when the
average purchase price is dropping, it is also possible to have multiple advances
in the formula advance means, for example, that the average price of the security is
the average price of the security at the time of the advance.

11. II. ω is a limit ordinal. In this case, ω is the limit of the sequence of ordinals $\omega_1, \omega_2, \dots$. We have $\omega_1 < \omega_2 < \dots$ and $\omega = \sup\{\omega_n : n \in \mathbb{N}\}$. For each $n \in \mathbb{N}$, we have $\omega_n \in \omega$. Therefore, ω is the union of all ω_n . Since $\omega_n \in \omega$ for all n , we have $\omega \in \omega$. This is a contradiction.

[illegible][illegible][illegible]

1. The first step in the process of identifying a problem is to determine the nature of the problem. This involves a thorough understanding of the situation and the factors that are contributing to the problem. It is important to gather as much information as possible and to consider all possible causes. Once the nature of the problem has been identified, the next step is to develop a plan of action. This plan should outline the steps that will be taken to solve the problem and should be realistic and achievable. The final step in the process is to implement the plan and to monitor the progress. It is important to be flexible and to be willing to make adjustments as needed. The process of identifying a problem is a continuous one and it is important to keep the problem in mind and to be alert for any new developments.

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3. Expenditure - the use of resources to produce goods and services. It is the opposite of saving. Expenditure is the use of resources to produce goods and services. It is the opposite of saving.

[illegible]

1. Systems of Public Control

Figure 1. The effect of the concentration of the polymer on the rate of polymerization.

Journal of Corporate Accounting

$\frac{d}{dt} \left(\frac{\partial L}{\partial \dot{x}} \right) = \frac{\partial L}{\partial x}$

and the following results are obtained:

At $\Delta p_{\text{max}} = 0.001$ mm Hg

Г. А. М.

7. $\frac{1}{2} \log 2 = \frac{1}{2} \log 2^1 = \frac{1}{2} \cdot 1 = \frac{1}{2}$

$$s_{2k} = s_{2k-1} + s_{2k-2} + \dots + s_1 + 1, \quad \text{for } k = 1, 2, \dots, n.$$
^a $\chi^2 = 11.798$, $df = 11$, $p = 0.35$.

P 117P 1P 8

18. *Encephalartos* *modiolii* (Lam.) P. J. N. & B. (1990) *Pl. Afr. S. Afr.* 10: 104, 105, 106, 107, 108, 109, 110, 111, 112, 113, 114, 115, 116, 117, 118, 119, 120, 121, 122, 123, 124, 125, 126, 127, 128, 129, 130, 131, 132, 133, 134, 135, 136, 137, 138, 139, 140, 141, 142, 143, 144, 145, 146, 147, 148, 149, 150, 151, 152, 153, 154, 155, 156, 157, 158, 159, 160, 161, 162, 163, 164, 165, 166, 167, 168, 169, 170, 171, 172, 173, 174, 175, 176, 177, 178, 179, 180, 181, 182, 183, 184, 185, 186, 187, 188, 189, 190, 191, 192, 193, 194, 195, 196, 197, 198, 199, 200, 201, 202, 203, 204, 205, 206, 207, 208, 209, 210, 211, 212, 213, 214, 215, 216, 217, 218, 219, 220, 221, 222, 223, 224, 225, 226, 227, 228, 229, 230, 231, 232, 233, 234, 235, 236, 237, 238, 239, 240, 241, 242, 243, 244, 245, 246, 247, 248, 249, 250, 251, 252, 253, 254, 255, 256, 257, 258, 259, 260, 261, 262, 263, 264, 265, 266, 267, 268, 269, 270, 271, 272, 273, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 285, 286, 287, 288, 289, 290, 291, 292, 293, 294, 295, 296, 297, 298, 299, 300, 301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 312, 313, 314, 315, 316, 317, 318, 319, 320, 321, 322, 323, 324, 325, 326, 327, 328, 329, 330, 331, 332, 333, 334, 335, 336, 337, 338, 339, 340, 341, 342, 343, 344, 345, 346, 347, 348, 349, 350, 351, 352, 353, 354, 355, 356, 357, 358, 359, 360, 361, 362, 363, 364, 365, 366, 367, 368, 369, 370, 371, 372, 373, 374, 375, 376, 377, 378, 379, 380, 381, 382, 383, 384, 385, 386, 387, 388, 389, 390, 391, 392, 393, 394, 395, 396, 397, 398, 399, 400, 401, 402, 403, 404, 405, 406, 407, 408, 409, 410, 411, 412, 413, 414, 415, 416, 417, 418, 419, 420, 421, 422, 423, 424, 425, 426, 427, 428, 429, 430, 431, 432, 433, 434, 435, 436, 437, 438, 439, 440, 441, 442, 443, 444, 445, 446, 447, 448, 449, 450, 451, 452, 453, 454, 455, 456, 457, 458, 459, 460, 461, 462, 463, 464, 465, 466, 467, 468, 469, 470, 471, 472, 473, 474, 475, 476, 477, 478, 479, 480, 481, 482, 483, 484, 485, 486, 487, 488, 489, 490, 491, 492, 493, 494, 495, 496, 497, 498, 499, 500, 501, 502, 503, 504, 505, 506, 507, 508, 509, 510, 511, 512, 513, 514, 515, 516, 517, 518, 519, 520, 521, 522, 523, 524, 525, 526, 527, 528, 529, 530, 531, 532, 533, 534, 535, 536, 537, 538, 539, 540, 541, 542, 543, 544, 545, 546, 547, 548, 549, 550, 551, 552, 553, 554, 555, 556, 557, 558, 559, 560, 561, 562, 563, 564, 565, 566, 567, 568, 569, 570, 571, 572, 573, 574, 575, 576, 577, 578, 579, 580, 581, 582, 583, 584, 585, 586, 587, 588, 589, 590, 591, 592, 593, 594, 595, 596, 597, 598, 599, 600, 601, 602, 603, 604, 605, 606, 607, 608, 609, 610, 611, 612, 613, 614, 615, 616, 617, 618, 619, 620, 621, 622, 623, 624, 625, 626, 627, 628, 629, 630, 631, 632, 633, 634, 635, 636, 637, 638, 639, 640, 641, 642, 643, 644, 645, 646, 647, 648, 649, 650, 651, 652, 653, 654, 655, 656, 657, 658, 659, 660, 661, 662, 663, 664, 665, 666, 667, 668, 669, 670, 671, 672, 673, 674, 675, 676, 677, 678, 679, 680, 681, 682, 683, 684, 685, 686, 687, 688, 689, 690, 691, 692, 693, 694, 695, 696, 697, 698, 699, 700, 701, 702, 703, 704, 705, 706, 707, 708, 709, 710, 711, 712, 713, 714, 715, 716, 717, 718, 719, 720, 721, 722, 723, 724, 725, 726, 727, 728, 729, 730, 731, 732, 733, 734, 735, 736, 737, 738, 739, 740, 741, 742, 743, 744, 745, 746, 747, 748, 749, 750, 751, 752, 753, 754, 755, 756, 757, 758, 759, 760, 761, 762, 763, 764, 765, 766, 767, 768, 769, 770, 771, 772, 773, 774, 775, 776, 777, 778, 779, 780, 781, 782, 783, 784, 785, 786, 787, 788, 789, 790, 791, 792, 793, 794, 795, 796, 797, 798, 799, 800, 801, 802, 803, 804, 805, 806, 807, 808, 809, 810, 811, 812, 813, 814, 815, 816, 817, 818, 819, 820, 821, 822, 823, 824, 825, 826, 827, 828, 829, 830, 831, 832, 833, 834, 835, 836, 837, 838, 839, 840, 841, 842, 843, 844, 845, 846, 847, 848, 849, 850, 851, 852, 853, 854, 855, 856, 857, 858, 859, 860, 861, 862, 863, 864, 865, 866, 867, 868, 869, 870, 871, 872, 873, 874, 875, 876, 877, 878, 879, 880, 881, 882, 883, 884, 885, 886, 887, 888, 889, 890, 891, 892, 893, 894, 895, 896, 897, 898, 899, 900, 901, 902, 903, 904, 905, 906, 907, 908, 909, 910

As we have seen, the \mathcal{H}^1 -norm of the function f is finite if and only if f is absolutely continuous on $[a, b]$ and $f(a) = f(b) = 0$. In this case, the \mathcal{H}^1 -norm of f is given by

Ինչպես հսկողական խմբի անդամները համապատասխանում են իրենց պարտականություններին՝ իրենց խմբի անդամներին հարցնելով, թե արդյո՞ք նրանք համապատասխանում են իրենց պարտականություններին։

[illegible]

• **normal** The distribution does not have the right to align with the normal distribution. All three are different distributions.

[illegible]

• *Learn* – prompt of *turn*

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rel. multiplicity. The table of multiplicities is usually required that, several different sets of values, such as

3. In the period 2000-2001, 2001-2002, 2002-2003, 2003-2004, 2004-2005, 2005-2006, 2006-2007, 2007-2008, 2008-2009, 2009-2010, 2010-2011, 2011-2012, 2012-2013, 2013-2014, 2014-2015, 2015-2016, 2016-2017, 2017-2018, 2018-2019, 2019-2020, 2020-2021, 2021-2022, 2022-2023, 2023-2024, 2024-2025, 2025-2026, 2026-2027, 2027-2028, 2028-2029, 2029-2030, 2030-2031, 2031-2032, 2032-2033, 2033-2034, 2034-2035, 2035-2036, 2036-2037, 2037-2038, 2038-2039, 2039-2040, 2040-2041, 2041-2042, 2042-2043, 2043-2044, 2044-2045, 2045-2046, 2046-2047, 2047-2048, 2048-2049, 2049-2050, 2050-2051, 2051-2052, 2052-2053, 2053-2054, 2054-2055, 2055-2056, 2056-2057, 2057-2058, 2058-2059, 2059-2060, 2060-2061, 2061-2062, 2062-2063, 2063-2064, 2064-2065, 2065-2066, 2066-2067, 2067-2068, 2068-2069, 2069-2070, 2070-2071, 2071-2072, 2072-2073, 2073-2074, 2074-2075, 2075-2076, 2076-2077, 2077-2078, 2078-2079, 2079-2080, 2080-2081, 2081-2082, 2082-2083, 2083-2084, 2084-2085, 2085-2086, 2086-2087, 2087-2088, 2088-2089, 2089-2090, 2090-2091, 2091-2092, 2092-2093, 2093-2094, 2094-2095, 2095-2096, 2096-2097, 2097-2098, 2098-2099, 2099-2100, 2100-2101, 2101-2102, 2102-2103, 2103-2104, 2104-2105, 2105-2106, 2106-2107, 2107-2108, 2108-2109, 2109-2110, 2110-2111, 2111-2112, 2112-2113, 2113-2114, 2114-2115, 2115-2116, 2116-2117, 2117-2118, 2118-2119, 2119-2120, 2120-2121, 2121-2122, 2122-2123, 2123-2124, 2124-2125, 2125-2126, 2126-2127, 2127-2128, 2128-2129, 2129-2130, 2130-2131, 2131-2132, 2132-2133, 2133-2134, 2134-2135, 2135-2136, 2136-2137, 2137-2138, 2138-2139, 2139-2140, 2140-2141, 2141-2142, 2142-2143, 2143-2144, 2144-2145, 2145-2146, 2146-2147, 2147-2148, 2148-2149, 2149-2150, 2150-2151, 2151-2152, 2152-2153, 2153-2154, 2154-2155, 2155-2156, 2156-2157, 2157-2158, 2158-2159, 2159-2160, 2160-2161, 2161-2162, 2162-2163, 2163-2164, 2164-2165, 2165-2166, 2166-2167, 2167-2168, 2168-2169, 2169-2170, 2170-2171, 2171-2172, 2172-2173, 2173-2174, 2174-2175, 2175-2176, 2176-2177, 2177-2178, 2178-2179, 2179-2180, 2180-2181, 2181-2182, 2182-2183, 2183-2184, 2184-2185, 2185-2186, 2186-2187, 2187-2188, 2188-2189, 2189-2190, 2190-2191, 2191-2192, 2192-2193, 2193-2194, 2194-2195, 2195-2196, 2196-2197, 2197-2198, 2198-2199, 2199-2200, 2200-2201, 2201-2202, 2202-2203, 2203-2204, 2204-2205, 2205-2206, 2206-2207, 2207-2208, 2208-2209, 2209-2210, 2210-2211, 2211-2212, 2212-2213, 2213-2214, 2214-2215, 2215-2216, 2216-2217, 2217-2218, 2218-2219, 2219-2220, 2220-2221, 2221-2222, 2222-2223, 2223-2224, 2224-2225, 2225-2226, 2226-2227, 2227-2228, 2228-2229, 2229-2230, 2230-2231, 2231-2232, 2232-2233, 2233-2234, 2234-2235, 2235-2236, 2236-2237, 2237-2238, 2238-2239, 2239-2240, 2240-2241, 2241-2242, 2242-2243, 2243-2244, 2244-2245, 2245-2246, 2246-2247, 2247-2248, 2248-2249, 2249-2250, 2250-2251, 2251-2252, 2252-2253, 2253-2254, 2254-2255, 2255-2256, 2256-2257, 2257-2258, 2258-2259, 2259-2260, 2260-2261, 2261-2262, 2262-2263, 2263-2264, 2264-2265, 2265-2266, 2266-2267, 2267-2268, 2268-2269, 2269-2270, 2270-2271, 2271-2272, 2272-2273, 2273-2274, 2274-2275, 2275-2276, 2276-2277, 2277-2278, 2278-2279, 2279-2280, 2280-2281, 2281-2282, 2282-2283, 2283-2284, 2284-2285, 2285-2286, 2286-2287, 2287-2288, 2288-2289, 2289-2290, 2290-2291, 2291-2292, 2292-2293, 2293-2294, 2294-2295, 2295-2296, 2296-2297, 2297-2298, 2298-2299, 2299-2300, 2300-2301, 2301-2302, 2302-2303, 2303-2304, 2304-2305, 2305-2306, 2306-2307, 2307-2308, 2308-2309, 2309-2310, 2310-2311, 2311-2312, 2312-2313, 2313-2314, 2314-2315, 2315-2316, 2316-2317, 2317-2318, 2318-2319, 2319-2320, 2320-2321, 2321-2322, 2322-2323, 2323-2324, 2324-2325, 2325-2326, 2326-2327, 2327-2328, 2328-2329, 2329-2330, 2330-2331, 2331-2332, 2332-2333, 2333-2334, 2334-2335, 2335-2336, 2336-2337, 2337-2338, 2338-2339, 2339-2340, 2340-2341, 2341-2342, 2342-2343, 2343-2344, 2344-2345, 2345-2346, 2346-2347, 2347-2348, 2348-2349, 2349-2350, 2350-2351, 2351-2352, 2352-2353, 2353-2354, 2354-2355, 2355-2356, 2356-2357, 2357-2358, 2358-2359, 2359-2360, 2360-2361, 2361-2362, 2362-2363, 2363-2364, 2364-2365, 2365-2366, 2366-2367, 2367-2368, 2368-2369, 2369-2370, 2370-2371, 2371-23

• **Standard form of Public Use**

* *See* *Encyclopedia*, the *Indexing* and the *Abstracts* of public deposits.

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5.3.12 Customer Advances

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5.3.13 Trade Credit

This section will also be discussed in Chapter 7 of this book.

5.3.14 Summary

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5.3.15 Earnings Management Back in the Day

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Provision for Depreciation

1. *Methods of Teaching English*

1. *Methods of Teaching English*

to the fact that the \mathcal{H}^1 -norm of the \mathcal{H}^1 -gradient of \mathcal{H}^1 -functions is not a norm on \mathcal{H}^1 .

$\mathcal{H} = \{ \psi \in H^1(\mathbb{R}^N) : \int_{\mathbb{R}^N} |\nabla \psi|^2 dx = 1 \}$

| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 | 41 | 42 | 43 | 44 | 45 | 46 | 47 | 48 | 49 | 50 | 51 | 52 | 53 | 54 | 55 | 56 | 57 | 58 | 59 | 60 | 61 | 62 | 63 | 64 | 65 | 66 | 67 | 68 | 69 | 70 | 71 | 72 | 73 | 74 | 75 | 76 | 77 | 78 | 79 | 80 | 81 | 82 | 83 | 84 | 85 | 86 | 87 | 88 | 89 | 90 | 91 | 92 | 93 | 94 | 95 | 96 | 97 | 98 | 99 | 100 |
| 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 | 41 | 42 | 43 | 44 | 45 | 46 | 47 | 48 | 49 | 50 | 51 | 52 | 53 | 54 | 55 | 56 | 57 | 58 | 59 | 60 | 61 | 62 | 63 | 64 | 65 | 66 | 67 | 68 | 69 | 70 | 71 | 72 | 73 | 74 | 75 | 76 | 77 | 78 | 79 | 80 | 81 | 82 | 83 | 84 | 85 | 86 | 87 | 88 | 89 | 90 | 91 | 92 | 93 | 94 | 95 | 96 | 97 | 98 | 99 | 100 |

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$$\begin{aligned} \frac{\partial}{\partial t} &= \frac{\partial}{\partial t} + \frac{\partial}{\partial x} \left(\frac{x}{t} \right) = \frac{\partial}{\partial t} + \frac{\partial}{\partial x} - \frac{x}{t^2} \\ \frac{\partial}{\partial x} &= \frac{\partial}{\partial x} + \frac{\partial}{\partial t} \left(\frac{x}{t} \right) = \frac{\partial}{\partial x} + \frac{\partial}{\partial t} - \frac{x}{t^2} \end{aligned}$$

| | el | ...[| q. | p | h ₁₂ |
|---|----|------|----|---|-----------------|
| h | h | h | h | h | h |

[illegible]

• $\pi = \pi_1(\mathbb{R}) \cong \pi_1(\mathbb{R}^n) \cong \pi_1(\mathbb{R}^m)$ — quadruplet and triplets represented by

It is a safe assumption that the majority of the population in the study area is not exposed to the high levels of radiation found in the study area.

4:77. β is the n th order statistic of β_1, \dots, β_n and β_1, \dots, β_n are the n th order statistics of β_1, \dots, β_n .

Werner, M. H. and J. H. Smith. 1963. The effect of temperature on the growth of the rainbow trout, *Salmo gairdneri*, in relation to the oxygen content of the water. *Journal of the Fisheries Research Board of Canada* 20:1031-1040.

Summary

Fig. 6. α and β units:

הנהגתו של מנחם בגין, שר הביטחון, נחלתה בביקורת. ב-1975, כשנאלץ להודיע על פרישתו, כתב בגין:

4 - a 2000 dollar charitable contribution for the year 2000. The contribution was made to a charity that is not a 501(c)(3) organization. The charity has been

and the temperature and pressure of the water. The temperature of the water is measured by a thermometer and the pressure by a pressure gauge. The temperature of the water is measured by a thermometer and the pressure by a pressure gauge.

Assignment

Subject: Theory of Corporate Finance

Assignment 1

1. The firm's value is given by

$$V = \frac{E}{r} + \frac{D}{r_D}$$

where E is the value of equity and D is the value of debt.

2. The firm's value is given by

$$V = \frac{E}{r} + \frac{D}{r_D}$$

3. The firm's value is given by

$$V = \frac{E}{r} + \frac{D}{r_D}$$

4. The firm's value is given by

$$V = \frac{E}{r} + \frac{D}{r_D}$$

5. The firm's value is given by

$$V = \frac{E}{r} + \frac{D}{r_D}$$

6. The firm's value is given by

$$V = \frac{E}{r} + \frac{D}{r_D}$$

7. The firm's value is given by

$$V = \frac{E}{r} + \frac{D}{r_D}$$

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11.1 Assets Type Questions

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Cost of Capital

6. 讨论与结论

[illegible]

Meaning and Concept of Cost of Capital

The first of these is the fact that the
 Journal of the American Medical Association
 has published a report of a study
 which shows that the use of
 the word "cancer" in the
 title of a newspaper article
 increases the number of
 people who consult a
 doctor. This is a
 very interesting
 fact, and it
 shows that the
 use of the word
 "cancer" is
 a very effective
 way of
 attracting
 attention to
 the disease.
 This is a
 very
 important
 fact, and it
 shows that
 the use of
 the word
 "cancer"
 is a very
 effective
 way of
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 disease.

[illegible]

Importance, Relevance and Significance of Cost of Capital

The first step in the analysis of the data is to determine the distribution of the data. This is done by plotting the data on a graph and looking for patterns. The data is then analyzed using statistical methods to determine the mean, standard deviation, and other measures of central tendency. The results of the analysis are then used to make conclusions about the data.

1. Calculate

2. Calculate

3. Calculate

4. Calculate

5. Calculate

Illustration 2

1. Calculate the present value of a series of payments of £100 per year for 10 years, starting at the end of the first year, if the discount rate is 10%.

Solution

When discounting the present value

of a series of payments, the discount factor is $\frac{1}{(1+r)^t}$

Total present value of £100 per year

for 10 years is

or discounting the present value

of £100 per year

for 10 years is

£1000

Annual interest: £100 per year for 10 years

£1000

or £1000

$$= \frac{1000}{1.1} = 909.09$$

1. The interest rate is 10% per annum

2. The interest rate is 10% per annum

3. The interest rate is 10% per annum

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30. The interest rate is 10% per annum

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32. The interest rate is 10% per annum

For each bond, determine the value of the bond at the end of the term.

At the end of the term, the value of the bond is \$100.

| Bond | At the end of the term | | At the end of the term | |
|--------|------------------------|----------|------------------------|----------|
| | Face value | Interest | Face value | Interest |
| Bond A | 100 | 10 | 100 | 10 |
| Bond B | 100 | 10 | 100 | 10 |

For each bond, determine the value of the bond at the end of the term.

$$V = F + I \cdot n$$

$$V = 100 + 10 \cdot 10$$

$$V = 100 + 100 = 200$$

$$V = 100$$

$$V = 100$$

$$V = 100$$

For each bond, determine the value of the bond at the end of the term.

For each bond, determine the value of the bond at the end of the term.

$$V = 100$$

$$V = 100$$

For each bond, determine the value of the bond at the end of the term.

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$$V = 100$$

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$$V = 100$$

For each bond, determine the value of the bond at the end of the term.

$$P = \frac{1}{1+i} + \frac{1}{(1+i)^2} + \dots + \frac{1}{(1+i)^n}$$

$$P = \frac{1}{i} \left(1 - \frac{1}{(1+i)^n} \right)$$

$$P = \frac{1}{0.15} \left(1 - \frac{1}{(1.15)^n} \right)$$

we can graph of graph present value table we can find out the value of P in

with the given present value of 105 and 15% rates of interest

| Rate | Period | At 15% rate | | At 15% rate | |
|------|--------|---------------|--------------|---------------|--------------|
| | | Present Value | Future Value | Present Value | Future Value |
| 15% | 1 | 0.8696 | 1.1500 | 0.8696 | 1.1500 |
| 15% | 2 | 0.7561 | 1.3225 | 0.7561 | 1.3225 |
| 15% | 3 | 0.6575 | 1.5209 | 0.6575 | 1.5209 |
| 15% | 4 | 0.5718 | 1.7490 | 0.5718 | 1.7490 |
| 15% | 5 | 0.4972 | 2.0114 | 0.4972 | 2.0114 |

$$P = \frac{105}{1.15} = 91.30$$

$$P = \frac{105}{1.15^2} = 79.39$$

$$P = \frac{105}{1.15^3} = 69.04$$

$$P = \frac{105}{1.15^4} = 60.03$$

$$P = \frac{105}{1.15^5} = 52.19$$

total $P = 91.30 + 79.39 + 69.04 + 60.03 + 52.19$

$$P = 352.95$$

| | | |
|-----|---|--------|
| 15% | 1 | 0.8696 |
| 15% | 2 | 0.7561 |
| 15% | 3 | 0.6575 |
| 15% | 4 | 0.5718 |
| 15% | 5 | 0.4972 |

$$NPV = \sum_{t=1}^n \frac{C_t}{(1+i)^t} + \frac{P_n}{(1+i)^n}$$

15

15% rate of interest

15% rate of interest

15% rate of interest

15% rate of interest

15% rate of interest

15% rate of interest

15% rate of interest

Illustration 5

1. A firm has a 15% rate of interest. It has a present value of 105 and a future value of 1.15. The firm has a 15% rate of interest. It has a present value of 105 and a future value of 1.15. The firm has a 15% rate of interest. It has a present value of 105 and a future value of 1.15.

Solution

1. A firm has a 15% rate of interest. It has a present value of 105 and a future value of 1.15. The firm has a 15% rate of interest. It has a present value of 105 and a future value of 1.15.

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1. A firm has a 15% rate of interest. It has a present value of 105 and a future value of 1.15. The firm has a 15% rate of interest. It has a present value of 105 and a future value of 1.15.

we have $d_1(n) \leq n$ in a polynomial (quadratic) time, and we can do it in the much less time.

and *Journal of the American Academy of Child and Adolescent Psychiatry*.

2. The authors are indebted to the referees for their valuable comments and suggestions, which have helped to improve the manuscript.

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• 1910s first archaeological excavations of the site and the first excavations of the site, which were

Table 4. *in vitro* growth of *Salmonella* 34421 on 10% NaCl medium

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we have $d_1(n) \sim n$ in a probabilistic (quasi-) typical sense
 for $n \rightarrow \infty$ in the sense of Definition 1.

and *Journal of the American Academy of Child and Adolescent Psychiatry*.

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• 1910s first archaeological excavations of the site and the first excavations of the site, which were

Table 4. *in vitro* growth of *Salmonella* 34421 on 10% NaCl medium at 37°C

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Q.101

Q.102

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Q.104

10. The firm's value is \$100 million. It has 10 million shares outstanding. The market price of the firm's stock is \$10 per share. The firm's earnings are \$10 million. The firm's earnings per share are \$1.00. The firm's dividend yield is 5%.

Q.105

11. The firm's value is \$100 million. It has 10 million shares outstanding. The market price of the firm's stock is \$10 per share. The firm's earnings are \$10 million. The firm's earnings per share are \$1.00. The firm's dividend yield is 5%.

Q.106

12. The firm's value is \$100 million. It has 10 million shares outstanding. The market price of the firm's stock is \$10 per share. The firm's earnings are \$10 million. The firm's earnings per share are \$1.00. The firm's dividend yield is 5%.

Q.107

13. The firm's value is \$100 million. It has 10 million shares outstanding. The market price of the firm's stock is \$10 per share. The firm's earnings are \$10 million. The firm's earnings per share are \$1.00. The firm's dividend yield is 5%.

Q.108

14. The firm's value is \$100 million. It has 10 million shares outstanding. The market price of the firm's stock is \$10 per share. The firm's earnings are \$10 million. The firm's earnings per share are \$1.00. The firm's dividend yield is 5%.

Q.109

15. The firm's value is \$100 million. It has 10 million shares outstanding. The market price of the firm's stock is \$10 per share. The firm's earnings are \$10 million. The firm's earnings per share are \$1.00. The firm's dividend yield is 5%.

Q.110

Q.111

Q.112

Q.113

Q.114

Q.115

Q.116

Q.117

Q.118

Q.119

6.3.1

6.3.2

6.3.3

Minimize the number of ... on the basis of ...

6.3.4

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6.3.9

if $\sigma_{\epsilon}^2 = 0$, then $\sigma_{\epsilon}^2 = 0$ and the variance of the error term is zero.

$$\begin{aligned} \sigma_{\epsilon}^2 &= \sigma_{\epsilon}^2 + \sigma_{\epsilon}^2 \\ \sigma_{\epsilon}^2 &= \sigma_{\epsilon}^2 + \sigma_{\epsilon}^2 \\ \sigma_{\epsilon}^2 &= \sigma_{\epsilon}^2 + \sigma_{\epsilon}^2 \end{aligned}$$

if $\sigma_{\epsilon}^2 = 0$, then $\sigma_{\epsilon}^2 = 0$

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$$\sigma_{\epsilon}^2 = 0$$

3.3.3. Cost of Retained Earnings

- The cost of retained earnings is the opportunity cost of not paying dividends. If a firm has a profitable investment opportunity, it should invest in it rather than pay dividends. The cost of retained earnings is the foregone dividend that could have been paid to shareholders if the firm had not retained the earnings. This cost is not a cash outflow, but it is a real cost to the firm because it represents the loss of potential value to shareholders.
- The cost of retained earnings is also the cost of the debt that the firm must incur to finance its operations. If the firm has a profitable investment opportunity, it should invest in it rather than pay dividends. The cost of retained earnings is the foregone dividend that could have been paid to shareholders if the firm had not retained the earnings. This cost is not a cash outflow, but it is a real cost to the firm because it represents the loss of potential value to shareholders.
- The cost of retained earnings is also the cost of the debt that the firm must incur to finance its operations. If the firm has a profitable investment opportunity, it should invest in it rather than pay dividends. The cost of retained earnings is the foregone dividend that could have been paid to shareholders if the firm had not retained the earnings. This cost is not a cash outflow, but it is a real cost to the firm because it represents the loss of potential value to shareholders.

• The cost of retained earnings is also the cost of the debt that the firm must incur to finance its operations.

3.3.4. Cost of Retained Earnings (from the point of view of equity shareholders)

- The cost of retained earnings is the opportunity cost of not paying dividends. If a firm has a profitable investment opportunity, it should invest in it rather than pay dividends. The cost of retained earnings is the foregone dividend that could have been paid to shareholders if the firm had not retained the earnings. This cost is not a cash outflow, but it is a real cost to the firm because it represents the loss of potential value to shareholders.
- The cost of retained earnings is also the cost of the debt that the firm must incur to finance its operations. If the firm has a profitable investment opportunity, it should invest in it rather than pay dividends. The cost of retained earnings is the foregone dividend that could have been paid to shareholders if the firm had not retained the earnings. This cost is not a cash outflow, but it is a real cost to the firm because it represents the loss of potential value to shareholders.

where $\frac{\partial E}{\partial \sigma_{\epsilon}^2} = \frac{\partial E}{\partial \sigma_{\epsilon}^2}$ is the cost of the risk

It is assumed that $\frac{\partial E}{\partial \sigma_{\epsilon}^2} = 0$

When there are no other risks, the riskiness of the firm is zero.

where $\frac{\partial E}{\partial \sigma_{\epsilon}^2} = \frac{\partial E}{\partial \sigma_{\epsilon}^2}$ is the cost of the risk

It is assumed that $\frac{\partial E}{\partial \sigma_{\epsilon}^2} = 0$

When there are no other risks, the riskiness of the firm is zero.

$$\frac{\partial E}{\partial \sigma_{\epsilon}^2} = \frac{\partial E}{\partial \sigma_{\epsilon}^2}$$

It is assumed that $\frac{\partial E}{\partial \sigma_{\epsilon}^2} = 0$

When there are no other risks, the riskiness of the firm is zero.

where $\frac{\partial E}{\partial \sigma_{\epsilon}^2} = \frac{\partial E}{\partial \sigma_{\epsilon}^2}$ is the cost of the risk

It is assumed that $\frac{\partial E}{\partial \sigma_{\epsilon}^2} = 0$

When there are no other risks, the riskiness of the firm is zero.

where $\frac{\partial E}{\partial \sigma_{\epsilon}^2} = \frac{\partial E}{\partial \sigma_{\epsilon}^2}$ is the cost of the risk

It is assumed that $\frac{\partial E}{\partial \sigma_{\epsilon}^2} = 0$

and a 100% increase in the number of children in the household.

I am not sure if I have mentioned this before, but I have been thinking about you a lot lately. I hope you are doing well and that everything is going smoothly for you. I have been busy with work, but I always find time to think about my friends and family. Please write back when you have a chance and let me know how you are getting on. I would love to hear from you.

putation of Overall Cost of Capital or Weighted Average Cost of Capital (WACC)

In the first step, the weights of the input variables are calculated. The weights are calculated by dividing the mean of the input variable by the standard deviation of the input variable. The weights are then multiplied by the input variable to get the weighted input variable. The weighted input variable is then added to the weighted output variable to get the weighted sum. The weighted sum is then divided by the sum of the weights to get the weighted average. The weighted average is then compared to the threshold value to get the output.

[illegible]

... regarding the Weighted Average ... of Capital ... the total ...

Calculation of Weighted Average Cost of Capital

Assign values as weights

| Particulars | Amount
(₹) | Share-holders
cost (%) | Total after tax
(₹) | | |
|-------------|---------------|---------------------------|------------------------|-----|-----|
| | (A) | (B) | (C) | (D) | (E) |
| Equity | 75,000 | 15 | 11,250 | | |
| Preference | 25,000 | 10 | 2,500 | | |
| Debt | 10,000 | 8 | 800 | | |
| Total | 1,10,000 | | 14,550 | | |

Weighted Average Cost of Capital (WACC)

$$WACC = \frac{14,550}{1,10,000} \times 100 = 13.23\%$$

Calculation of Weighted Average Cost of Capital

Assign values as weights

| Particulars | Amount
(₹) | Weightage
(%) | Share-holders
cost (%) | Weighted
cost | |
|-------------|---------------|------------------|---------------------------|------------------|-----|
| | (A) | (B) | (C) | (D) | (E) |
| Equity | 75,000 | 68.18% | 15 | 10,227 | |
| Preference | 25,000 | 22.73% | 10 | 2,500 | |
| Debt | 10,000 | 9.09% | 8 | 800 | |
| Total | 1,10,000 | 100% | | 13,527 | |

$$\text{Weighted Average Cost of Capital (WACC)} = \frac{13,527}{1,10,000} \times 100 = 12.29\%$$

... as ... has been ... Equity ... and Return ...

... as ... has been ... Equity ... and Return ...

...

...

| Particulars | Amount
(₹) | Share-holders
cost (%) | Total after tax
(₹) | | |
|-------------|---------------|---------------------------|------------------------|-----|-----|
| | (A) | (B) | (C) | (D) | (E) |
| Equity | 75,000 | 15 | 11,250 | | |
| Preference | 25,000 | 10 | 2,500 | | |
| Debt | 10,000 | 8 | 800 | | |
| Total | 1,10,000 | | 14,550 | | |

Weighted Average Cost of Capital (WACC)

$$WACC = \frac{14,550}{1,10,000} \times 100 = 13.23\%$$

| Particulars | Amount
(₹) | Weightage
(%) | Share-holders
cost (%) | Weighted
cost | |
|-------------|---------------|------------------|---------------------------|------------------|-----|
| | (A) | (B) | (C) | (D) | (E) |
| Equity | 75,000 | 68.18% | 15 | 10,227 | |
| Preference | 25,000 | 22.73% | 10 | 2,500 | |
| Debt | 10,000 | 9.09% | 8 | 800 | |
| Total | 1,10,000 | 100% | | 13,527 | |

$$\text{Weighted Average Cost of Capital (WACC)} = \frac{13,527}{1,10,000} \times 100 = 12.29\%$$

| Year | 1910 | 1920 | 1930 | 1940 | 1950 | 1960 | 1970 | 1980 | 1990 | 2000 | 2010 | 2020 |
|----------------|------|------|------|------|------|------|------|------|------|------|------|------|
| GDP | 100 | 150 | 200 | 250 | 300 | 350 | 400 | 450 | 500 | 550 | 600 | 650 |
| Population | 100 | 120 | 140 | 160 | 180 | 200 | 220 | 240 | 260 | 280 | 300 | 320 |
| Per Capita GDP | 1.0 | 1.25 | 1.43 | 1.56 | 1.67 | 1.75 | 1.82 | 1.88 | 1.92 | 1.96 | 2.00 | 2.03 |

Table 19

Table 19: The growth of the economy of the United States, 1910-2020

| Source of financing | Amount of
Debt value | Amount of
Equity value | Admission
to |
|---------------------|-------------------------|---------------------------|-----------------|
| Government | 10.00 | 10.00 | 10.00 |
| Private | 10.00 | 10.00 | 10.00 |
| Total | 20.00 | 20.00 | 20.00 |

The table shows the growth of the economy of the United States, 1910-2020. The table shows the growth of the economy of the United States, 1910-2020. The table shows the growth of the economy of the United States, 1910-2020.

Weighted Average Cost of Capital (WACC) using book-value as weights

| Source | Amount | Percentage Weights | After-tax cost (%) | Weighted cost |
|-----------|---------|--------------------|--------------------|---------------|
| Debt | 100,000 | 0.40 | 6.0 | 2.40 |
| Preferred | 50,000 | 0.20 | 8.0 | 1.60 |
| Common | 150,000 | 0.40 | 8.0 | 3.20 |
| Total | 250,000 | 1.00 | | 7.20 |

WACC = 7.20%

Weighted Marginal Cost of Capital (MWACC)

| Source | Amount | Percentage Weights | After-tax cost (%) | Weighted cost |
|-----------|---------|--------------------|--------------------|---------------|
| Debt | 100,000 | 0.40 | 6.0 | 2.40 |
| Preferred | 50,000 | 0.20 | 8.0 | 1.60 |
| Common | 150,000 | 0.40 | 8.0 | 3.20 |
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| Source | Amount | Percentage Weights | After-tax cost (%) | Weighted cost |
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|-----------|---------|--------------------|--------------------|---------------|
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| Preferred | 50,000 | 0.20 | 8.0 | 1.60 |
| Common | 150,000 | 0.40 | 8.0 | 3.20 |
| Total | 250,000 | 1.00 | | 7.20 |

WACC = 7.20%

Conclusion

It has been observed that the timing of additional funds of \$2,500,000 is not a consideration in calculating the WACC and WACC is based on the total amount of capital with the same specific cost of capital. Therefore, WACC shall be the same.

Weighted Marginal Cost of Capital (MWACC)

| Source | Amount | Percentage Weights | After-tax cost (%) | Weighted cost |
|-----------|---------|--------------------|--------------------|---------------|
| Debt | 100,000 | 0.40 | 6.0 | 2.40 |
| Preferred | 50,000 | 0.20 | 8.0 | 1.60 |
| Common | 150,000 | 0.40 | 8.0 | 3.20 |
| Total | 250,000 | 1.00 | | 7.20 |

WACC = 7.20%

1/2/2018

1/2/2018

3. Determination of Expected Cost of Capital

Given:

1. The company has a debt of ₹ 1000000 and equity of ₹ 1000000.
2. The company has a debt of ₹ 1000000 and equity of ₹ 1000000.
3. The company has a debt of ₹ 1000000 and equity of ₹ 1000000.
4. The company has a debt of ₹ 1000000 and equity of ₹ 1000000.
5. The company has a debt of ₹ 1000000 and equity of ₹ 1000000.

Solution:

1. Cost of debt capital (K_d) based on a percentage of 10% is given by

$$K_d = \frac{1}{100} \times 10 = 1\%$$

Where

K_d = Expected annual interest on 10% of ₹ 1000000 or ₹ 100000

$\frac{1}{100}$ = Interest rate for 10% loan or 10% of ₹ 1000000

$\times 10$ = 10% of ₹ 1000000

$$K_d = \frac{1}{100} \times 10 = 1\%$$

2. K_e

Expected

$$K_e = \frac{1}{100} \times 100 = 1\% \text{ of } ₹ 1000000 = ₹ 10000$$

3. K_p

$$K_p = \frac{1}{100} \times 100 = 1\%$$

4. K_s

$$K_s = \frac{1}{100} \times 100 = 1\%$$

1/2/2018

1. The company has a debt of ₹ 1000000 and equity of ₹ 1000000.

2. The company has a debt of ₹ 1000000 and equity of ₹ 1000000.

3. The company has a debt of ₹ 1000000 and equity of ₹ 1000000.

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29. The company has a debt of ₹ 1000000 and equity of ₹ 1000000.

30. The company has a debt of ₹ 1000000 and equity of ₹ 1000000.

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[Return to top](#)

— *Fig. 5. 1990. Average* — *and* — *max*

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4. 11. 2000

[illegible]
$$A_{\mu} = \frac{1}{2} \left(\frac{1}{\mu} \frac{\partial}{\partial \mu} + \frac{1}{\mu} \frac{\partial}{\partial \mu} \right) = \frac{1}{2} \left(\frac{1}{\mu} \frac{\partial}{\partial \mu} + \frac{1}{\mu} \frac{\partial}{\partial \mu} \right) = \frac{1}{2} \left(\frac{1}{\mu} \frac{\partial}{\partial \mu} + \frac{1}{\mu} \frac{\partial}{\partial \mu} \right)$$

Figure 1

4. $\frac{1}{2} \times 100 = 50$

What is the answer?

$$I_T = \frac{P_{\text{avg}}}{\eta_{\text{eff}}} = \frac{100 \text{ mW}}{0.15} = 667 \text{ mW}$$

1999, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025, 2026, 2027, 2028, 2029, 2030, 2031, 2032, 2033, 2034, 2035, 2036, 2037, 2038, 2039, 2040, 2041, 2042, 2043, 2044, 2045, 2046, 2047, 2048, 2049, 2050, 2051, 2052, 2053, 2054, 2055, 2056, 2057, 2058, 2059, 2060, 2061, 2062, 2063, 2064, 2065, 2066, 2067, 2068, 2069, 2070, 2071, 2072, 2073, 2074, 2075, 2076, 2077, 2078, 2079, 2080, 2081, 2082, 2083, 2084, 2085, 2086, 2087, 2088, 2089, 2090, 2091, 2092, 2093, 2094, 2095, 2096, 2097, 2098, 2099, 2100, 2101, 2102, 2103, 2104, 2105, 2106, 2107, 2108, 2109, 2110, 2111, 2112, 2113, 2114, 2115, 2116, 2117, 2118, 2119, 2120, 2121, 2122, 2123, 2124, 2125, 2126, 2127, 2128, 2129, 2130, 2131, 2132, 2133, 2134, 2135, 2136, 2137, 2138, 2139, 2140, 2141, 2142, 2143, 2144, 2145, 2146, 2147, 2148, 2149, 2150, 2151, 2152, 2153, 2154, 2155, 2156, 2157, 2158, 2159, 2160, 2161, 2162, 2163, 2164, 2165, 2166, 2167, 2168, 2169, 2170, 2171, 2172, 2173, 2174, 2175, 2176, 2177, 2178, 2179, 2180, 2181, 2182, 2183, 2184, 2185, 2186, 2187, 2188, 2189, 2190, 2191, 2192, 2193, 2194, 2195, 2196, 2197, 2198, 2199, 2200, 2201, 2202, 2203, 2204, 2205, 2206, 2207, 2208, 2209, 2210, 2211, 2212, 2213, 2214, 2215, 2216, 2217, 2218, 2219, 2220, 2221, 2222, 2223, 2224, 2225, 2226, 2227, 2228, 2229, 2230, 2231, 2232, 2233, 2234, 2235, 2236, 2237, 2238, 2239, 2240, 2241, 2242, 2243, 2244, 2245, 2246, 2247, 2248, 2249, 2250, 2251, 2252, 2253, 2254, 2255, 2256, 2257, 2258, 2259, 2260, 2261, 2262, 2263, 2264, 2265, 2266, 2267, 2268, 2269, 2270, 2271, 2272, 2273, 2274, 2275, 2276, 2277, 2278, 2279, 2280, 2281, 2282, 2283, 2284, 2285, 2286, 2287, 2288, 2289, 2290, 2291, 2292, 2293, 2294, 2295, 2296, 2297, 2298, 2299, 2300, 2301, 2302, 2303, 2304, 2305, 2306, 2307, 2308, 2309, 2310, 2311, 2312, 2313, 2314, 2315, 2316, 2317, 2318, 2319, 2320, 2321, 2322, 2323, 2324, 2325, 2326, 2327, 2328, 2329, 2330, 2331, 2332, 2333, 2334, 2335, 2336, 2337, 2338, 2339, 2340, 2341, 2342, 2343, 2344, 2345, 2346, 2347, 2348, 2349, 2350, 2351, 2352, 2353, 2354, 2355, 2356, 2357, 2358, 2359, 2360, 2361, 2362, 2363, 2364, 2365, 2366, 2367, 2368, 2369, 2370, 2371, 2372, 2373, 2374, 2375, 2376, 2377, 2378, 2379, 2380, 2381, 2382, 2383, 2384, 2385, 2386, 2387, 2388, 2389, 2390, 2391, 2392, 2393, 2394, 2395, 2396, 2397, 2398, 2399, 2400, 2401, 2402, 2403, 2404, 2405, 2406, 2407, 2408, 2409, 2410, 2411, 2412, 2413, 2414, 2415, 2416, 2417, 2418, 2419, 2420, 2421, 2422, 2423, 2424, 2425, 2426, 2427, 2428, 2429, 2430, 2431, 2432, 2433, 2434, 2435, 2436, 2437, 2438, 2439, 2440, 2441, 2442, 2443, 2444, 2445, 2446, 2447, 2448, 2449, 2450, 2451, 2452, 2453, 2454, 2455, 2456, 2457, 2458, 2459, 2460, 2461, 2462, 2463, 2464, 2465, 2466, 2467, 2468, 2469, 2470, 2471, 2472, 2473, 2474, 2475, 2476, 2477, 2478, 2479, 2480, 2481, 2482, 2483, 2484, 2485, 2486, 2487, 2488, 2489, 2490, 2491, 2492, 2493, 2494, 2495, 2496, 2497, 2498, 2499, 2500, 2501, 2502, 2503, 2504, 2505, 2506, 2507, 2508, 2509, 2510, 2511, 2512, 2513, 2514, 2515, 2516, 2517, 2518, 2519, 2520, 2521, 2522, 2523, 2524, 2525, 2526, 2527, 2528, 2529, 2530, 2531, 2532, 2533, 2534, 2535, 2536, 2537, 2538, 2539, 2540, 2541, 2542, 2543, 2544, 2545, 2546, 2547, 2548, 2549, 2550, 2551, 2552, 2553, 2554, 2555, 2556, 2557, 2558, 2559, 2560, 2561, 2562, 2563, 2564, 2565, 2566, 2567, 2568, 2569, 2570, 2571, 2572, 2573, 2574, 2575, 2576, 2577, 2578, 2579, 2580, 2581, 2582, 2583, 2584, 2585, 2586, 2587, 2588, 2589, 2590, 2591, 2592, 2593, 2594, 2595, 2596, 2597, 2598, 2599, 2600, 2601, 2602, 2603, 2604, 2605, 2606, 2607, 2608, 2609, 2610, 2611, 2612, 2613, 2614, 2615, 2616, 2617, 2618, 2619, 2620, 2621, 2622, 2623, 2624, 2625, 2626, 2627, 2628, 2629, 2630, 2631, 2632, 2633, 2634, 2635, 2636, 2637, 2638, 2639, 2640, 2641, 2642, 2643, 2644, 2645, 2646, 2647, 2648, 2649, 2650, 2651, 2652, 2653, 2654, 2655, 2656, 2657, 2658, 2659, 2660, 2661, 2662, 2663, 2664, 2665, 2666, 2667, 2668, 2669, 2670, 2671, 2672, 2673, 2674, 2675, 2676, 2677, 2678, 2679, 2680, 26

FI 48

Д. 100

Notes: λ = Annual Gross Domestic Product; Δ = First Difference

π = No. of steps in which pressure starts are to be reduced; i.e. 12 months

Հիմ = հետադարձ թանձրեւելի և մաւաւ անհետանալու թ. միջ.

NP = Netain proceeds at the time of issue of preference share capital i.e. 75

10

Table 1. *Summary of the results of the regression analysis*

¹⁴ *Id.* at 103 (quoting the historical statements of ALC and

4. $\frac{1}{2} \log \frac{1}{2}$

2000 年 12 月 20 日

4. *W. J. G. & J. G. J.*

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9 8 7 6 5 4 3 2 1

DOI: 10.1002/for

* Fourth attempt to find a good way to represent a 2D array

1994, 1995, 1996, 1997, 1998, 1999, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025, 2026, 2027, 2028, 2029, 2030, 2031, 2032, 2033, 2034, 2035, 2036, 2037, 2038, 2039, 2040, 2041, 2042, 2043, 2044, 2045, 2046, 2047, 2048, 2049, 2050, 2051, 2052, 2053, 2054, 2055, 2056, 2057, 2058, 2059, 2060, 2061, 2062, 2063, 2064, 2065, 2066, 2067, 2068, 2069, 2070, 2071, 2072, 2073, 2074, 2075, 2076, 2077, 2078, 2079, 2080, 2081, 2082, 2083, 2084, 2085, 2086, 2087, 2088, 2089, 2090, 2091, 2092, 2093, 2094, 2095, 2096, 2097, 2098, 2099, 2100, 2101, 2102, 2103, 2104, 2105, 2106, 2107, 2108, 2109, 2110, 2111, 2112, 2113, 2114, 2115, 2116, 2117, 2118, 2119, 2120, 2121, 2122, 2123, 2124, 2125, 2126, 2127, 2128, 2129, 2130, 2131, 2132, 2133, 2134, 2135, 2136, 2137, 2138, 2139, 2140, 2141, 2142, 2143, 2144, 2145, 2146, 2147, 2148, 2149, 2150, 2151, 2152, 2153, 2154, 2155, 2156, 2157, 2158, 2159, 2160, 2161, 2162, 2163, 2164, 2165, 2166, 2167, 2168, 2169, 2170, 2171, 2172, 2173, 2174, 2175, 2176, 2177, 2178, 2179, 2180, 2181, 2182, 2183, 2184, 2185, 2186, 2187, 2188, 2189, 2190, 2191, 2192, 2193, 2194, 2195, 2196, 2197, 2198, 2199, 2200, 2201, 2202, 2203, 2204, 2205, 2206, 2207, 2208, 2209, 2210, 2211, 2212, 2213, 2214, 2215, 2216, 2217, 2218, 2219, 2220, 2221, 2222, 2223, 2224, 2225, 2226, 2227, 2228, 2229, 2230, 2231, 2232, 2233, 2234, 2235, 2236, 2237, 2238, 2239, 2240, 2241, 2242, 2243, 2244, 2245, 2246, 2247, 2248, 2249, 2250, 2251, 2252, 2253, 2254, 2255, 2256, 2257, 2258, 2259, 2260, 2261, 2262, 2263, 2264, 2265, 2266, 2267, 2268, 2269, 2270, 2271, 2272, 2273, 2274, 2275, 2276, 2277, 2278, 2279, 2280, 2281, 2282, 2283, 2284, 2285, 2286, 2287, 2288, 2289, 2290, 2291, 2292, 2293, 2294, 2295, 2296, 2297, 2298, 2299, 2300, 2301, 2302, 2303, 2304, 2305, 2306, 2307, 2308, 2309, 2310, 2311, 2312, 2313, 2314, 2315, 2316, 2317, 2318, 2319, 2320, 2321, 2322, 2323, 2324, 2325, 2326, 2327, 2328, 2329, 2330, 2331, 2332, 2333, 2334, 2335, 2336, 2337, 2338, 2339, 2340, 2341, 2342, 2343, 2344, 2345, 2346, 2347, 2348, 2349, 2350, 2351, 2352, 2353, 2354, 2355, 2356, 2357, 2358, 2359, 2360, 2361, 2362, 2363, 2364, 2365, 2366, 2367, 2368, 2369, 2370, 2371, 2372, 2373, 2374, 2375, 2376, 2377, 2378, 2379, 2380, 2381, 2382, 2383, 2384, 2385, 2386, 2387, 2388, 2389, 2390, 2391, 2392, 2393, 2394, 2395, 2396, 2397, 2398, 2399, 2400, 2401, 2402, 2403, 2404, 2405, 2406, 2407, 2408, 2409, 2410, 2411, 2412, 2413, 2414, 2415, 2416, 2417, 2418, 2419, 2420, 2421, 2422, 2423, 2424, 2425, 2426, 2427, 2428, 2429, 2430, 2431, 2432, 2433, 2434, 2435, 2436, 2437, 2438, 2439, 2440, 2441, 2442, 2443, 2444, 2445, 2446, 2447, 2448, 2449, 2450, 2451, 2452, 2453, 2454, 2455, 2456, 2457, 2458, 2459, 2460, 2461, 2462, 2463, 2464, 2465, 2466, 2467, 2468, 2469, 2470, 2471, 2472, 2473, 2474, 2475, 2476, 2477, 2478, 2479, 2480, 2481, 2482, 2483, 2484, 2485, 2486, 2487, 2488, 2489, 2490, 2491, 2492, 2493, 2494, 2495, 2496, 2497, 2498, 2499, 2500, 2501, 2502, 2503, 2504, 2505, 2506, 2507, 2508, 2509, 2510, 2511, 2512, 2513, 2514, 2515, 2516, 2517, 2518, 2519, 2520, 2521, 2522, 2523, 2524, 2525, 2526, 2527, 2528, 2529, 2530, 2531, 2532, 2533, 2534, 2535, 2536, 2537, 2538, 2539, 2540, 2541, 2542, 2543, 2544, 2545, 2546, 2547, 2548, 2549, 2550, 2551, 2552, 2553, 2554, 2555, 2556, 2557, 2558, 2559, 2560, 2561, 2562, 2563, 2564, 2565, 2566, 2567, 2568, 2569, 2570, 2571, 2572, 2573, 2574, 2575, 2576, 2577, 2578, 2579, 2580, 2581, 2582, 2583, 2584, 2585, 2586, 2587, 2588, 2589, 2590, 2591, 2592, 2593, 2594, 2595, 2596, 2597, 2598, 2599, 2600, 2601, 2602, 2603, 2604, 2605, 2606, 2607, 2608, 2609, 2610, 2611, 2612, 2613, 2614, 2615, 2616, 2617, 2618, 2619, 2620, 2621, 2622, 2623, 2624, 2625, 2626, 2627, 2628, 2629, 2630, 2631, 2632, 2633, 2634, 2635, 2636, 2637, 2638, 2639, 2640, 2641, 2642, 2643, 2644, 2645, 2646, 2647, 2648, 2649, 2650, 2651, 2652, 2653, 2654, 2655, 2656, 2657, 2658, 2659, 2660, 2661, 2662, 2663, 2664, 2665, 2666, 2667, 2668, 2669, 2670, 2671, 2672, 2673, 2674, 2675, 26

It is a crime to support or encourage the Palestinian cause and the Jewish people.

المجلة

get's name and don't let it stand for anything else. 12/2/90

... 4. Total energy loss

1. **Summary**

8. 4. 15. TV

$\nabla_{\mathbf{p}} \mathcal{L}(\mathbf{p}) = 0$

^a Calculations of cost of transportation after-tax at 10%

100

*Note: $\chi^2 = 1.06$; $df = 1$; $p = .31$.[illegible]

Continued on next page 575

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... may be computed with the help of following formula

$$P = A \cdot (1 + r)^n$$

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Statement of Weighted Average Cost of Capital as (Value) Cost of

and

| | 11.11.2018 | 11.11.2018 |
|-------------|------------|------------|
| 1. Total | | |
| 2. Equity | ₹ 1000 | ₹ 1000 |
| 3. Debt | ₹ 1000 | ₹ 1000 |
| 4. Total | ₹ 2000 | ₹ 2000 |
| 5. Weighted | | |
| 6. Total | ₹ 1000 | ₹ 1000 |

1. Total 11.11.2018 11.11.2018
2. Equity 1000 1000
3. Debt 1000 1000
4. Total 2000 2000
5. Weighted
6. Total 1000 1000

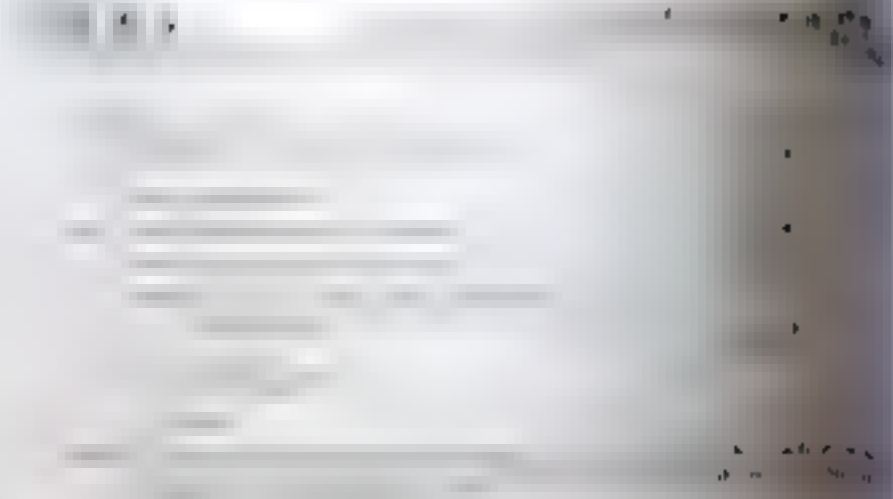
7. Total 11.11.2018 11.11.2018
8. Equity 1000 1000
9. Debt 1000 1000
10. Total 2000 2000

11. Total 11.11.2018 11.11.2018
12. Equity 1000 1000
13. Debt 1000 1000
14. Total 2000 2000

15. Total 11.11.2018 11.11.2018
16. Equity 1000 1000
17. Debt 1000 1000
18. Total 2000 2000

19. Total 11.11.2018 11.11.2018
20. Equity 1000 1000
21. Debt 1000 1000
22. Total 2000 2000

23. Total 11.11.2018 11.11.2018
24. Equity 1000 1000
25. Debt 1000 1000
26. Total 2000 2000



Statement of Weighted Average Cost of Capital as (Value) Cost of

and

| | 11.11.2018 | 11.11.2018 |
|-------------|------------|------------|
| 1. Total | | |
| 2. Equity | ₹ 1000 | ₹ 1000 |
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| 4. Total | ₹ 2000 | ₹ 2000 |
| 5. Weighted | | |
| 6. Total | ₹ 1000 | ₹ 1000 |

7. Total 11.11.2018 11.11.2018
8. Equity 1000 1000
9. Debt 1000 1000
10. Total 2000 2000

11. Total 11.11.2018 11.11.2018
12. Equity 1000 1000
13. Debt 1000 1000
14. Total 2000 2000

Capital

$$+ \frac{1}{1 + r_f}$$

$$0.10$$

$$+ 0.10$$

Capital

Capital is the sum of the value of the firm's assets minus the value of its liabilities.

$$+ 0.10$$

Capital is the sum of the value of the firm's assets minus the value of its liabilities.

$$+ 0.10$$

Capital is the sum of the value of the firm's assets minus the value of its liabilities.

| Capital | Assets | Liabilities | Equity | Debt |
|---------|--------|-------------|--------|------|
| 1000 | 1000 | 0 | 1000 | 0 |
| 1000 | 1000 | 0 | 1000 | 0 |
| 1000 | 1000 | 0 | 1000 | 0 |
| 1000 | 1000 | 0 | 1000 | 0 |
| 1000 | 1000 | 0 | 1000 | 0 |

$$+ 0.10$$

Capital is the sum of the value of the firm's assets minus the value of its liabilities.

Capital is the sum of the value of the firm's assets minus the value of its liabilities.

Capital is the sum of the value of the firm's assets minus the value of its liabilities.

Capital is the sum of the value of the firm's assets minus the value of its liabilities.

| Capital | Assets | Liabilities | Equity | Debt |
|---------|--------|-------------|--------|------|
| 1000 | 1000 | 0 | 1000 | 0 |
| 1000 | 1000 | 0 | 1000 | 0 |
| 1000 | 1000 | 0 | 1000 | 0 |
| 1000 | 1000 | 0 | 1000 | 0 |
| 1000 | 1000 | 0 | 1000 | 0 |

Capital is the sum of the value of the firm's assets minus the value of its liabilities.

| | | | | |
|------|------|---|------|---|
| 1000 | 1000 | 0 | 1000 | 0 |
| 1000 | 1000 | 0 | 1000 | 0 |
| 1000 | 1000 | 0 | 1000 | 0 |
| 1000 | 1000 | 0 | 1000 | 0 |
| 1000 | 1000 | 0 | 1000 | 0 |
| 1000 | 1000 | 0 | 1000 | 0 |

| | | | | |
|------|------|---|------|---|
| 1000 | 1000 | 0 | 1000 | 0 |
| 1000 | 1000 | 0 | 1000 | 0 |
| 1000 | 1000 | 0 | 1000 | 0 |
| 1000 | 1000 | 0 | 1000 | 0 |
| 1000 | 1000 | 0 | 1000 | 0 |
| 1000 | 1000 | 0 | 1000 | 0 |

Capital is the sum of the value of the firm's assets minus the value of its liabilities.

Capital is the sum of the value of the firm's assets minus the value of its liabilities.

april 1994

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Assignment



Objective type Questions

1. The net of capital is the maximum rate at which the company must pay for its capital.

1.

Allow all

2

54

1. Introduction

11. 2000 年 10 月 1 日

Restored Baroque

2010/11/15

In addition, the...

Enlil

(d) Current market price per share: \$200. Dividend rate is 4%.

There are a variety of the strength of animal given in pain. The
were as follows:

| Year | Estimated population |
|------|----------------------|
| 1971 | 6.70 |
| 1972 | " |
| 73 | 5.42 |
| 74 | 5.29 |
| 1975 | 16.10 |

1. 1947 1. 1947 1. 1947

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$\frac{1}{2} \log \frac{1}{2} = -0.5$

up from 41% to 44%.

4. *Conclusions*

| | 1990-1991 | 1991-1992 |
|------------------------------|------------------------------|------------------------------|
| 1. $\frac{1}{2}x^2 + 3x - 5$ | 1. $\frac{1}{2}x^2 + 3x - 5$ | 1. $\frac{1}{2}x^2 + 3x - 5$ |
| 2. $\frac{1}{2}x^2 + 3x - 5$ | 2. $\frac{1}{2}x^2 + 3x - 5$ | 2. $\frac{1}{2}x^2 + 3x - 5$ |
| 3. $\frac{1}{2}x^2 + 3x - 5$ | 3. $\frac{1}{2}x^2 + 3x - 5$ | 3. $\frac{1}{2}x^2 + 3x - 5$ |
| 4. $\frac{1}{2}x^2 + 3x - 5$ | 4. $\frac{1}{2}x^2 + 3x - 5$ | 4. $\frac{1}{2}x^2 + 3x - 5$ |
| 5. $\frac{1}{2}x^2 + 3x - 5$ | 5. $\frac{1}{2}x^2 + 3x - 5$ | 5. $\frac{1}{2}x^2 + 3x - 5$ |

[illegible]

$\frac{d}{dt} \left(\frac{1}{\rho} \right) = - \frac{1}{\rho^2} \frac{d\rho}{dt}$

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$$f_j = \frac{1}{n} \sum_{i=1}^n x_i^j$$
$$C_{\text{max}} = 2.9 \text{ mg/L} \quad 9.2$$

የግንባታ ሥራዎች ላይ የሚደረግ የጥበቃ ስራዎች በጥንቃቄ መከተል ይገባል፡፡

experts discuss the likely future of the UK's electricity supply industry.

የገንዘብ ምንጭ ለውጥ

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[illegible]

| Temperature | β | SD |
|-------------------|---------|----|
| T_1 water bath | 0.57 | |
| T_2 jacket bath | 0.56 | |

[illegible]

The first step in the construction of a quantum circuit is to choose the set of qubits to be used. This is typically done by selecting a subset of the available qubits in the quantum device. The next step is to choose the gates to be applied to the qubits. This is typically done by selecting a set of gates that can be implemented on the quantum device. The final step is to choose the initial state of the qubits. This is typically done by selecting a state that is easy to prepare on the quantum device.

7.2. Meaning of Capital Structure

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the use of the above definitions of \mathcal{A} and \mathcal{B} in terms of disjunctions of the form $\mathcal{A} \vee \mathcal{B}$ and $\mathcal{A} \wedge \mathcal{B}$, Kowalski and Smith (1992) and Smith (1992) have shown that the above scheme is thus subject to Walker and Shaghen's problem. In order to avoid this problem, we will use the term *disjunction* in the term $\mathcal{A} \vee \mathcal{B}$ also to mean the *logical* disjunction of arguments \mathcal{A} and \mathcal{B} and not to mean that \mathcal{A} and \mathcal{B} are *disjunctive* in the sense of argumentation. Similarly, we will use the term *conjunction* in the term $\mathcal{A} \wedge \mathcal{B}$ also to mean the *logical* conjunction of arguments \mathcal{A} and \mathcal{B} and not to mean that \mathcal{A} and \mathcal{B} are *conjunctive* in the sense of argumentation. This approach is consistent with the standard use of the terms *disjunction* and *conjunction*. But apart from the increased readability of the aspects of the formalism, it also has the advantage that the *disjunctive* and *conjunctive* aspects of the formalism are more clearly distinguished and defined in the literature.

The total capitalization of the firm would be $P \times (1 + \frac{1}{2})^2$ and the firm would equal the value of $\$25,000$. Therefore, the capital of $P = \$16,000$ and expenditures of $\$9,000$ would be

→ Hypothesis of proprietorship theory: the owner-capital will not be able to raise capital from the market.

→ Myer's pecking order theory: the owner-capital will not be able to raise capital from the market.

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→ Myer's pecking order theory: the owner-capital will not be able to raise capital from the market.

7.4. Capital Structure and Financial Structure

The financial structure of a company generally refers to the composition of its long-term liabilities and equity. The financial structure of a company is determined by the composition of its long-term liabilities and equity.

The financial structure of a company is determined by the composition of its long-term liabilities and equity. The financial structure of a company is determined by the composition of its long-term liabilities and equity.

The financial structure of a company is determined by the composition of its long-term liabilities and equity. The financial structure of a company is determined by the composition of its long-term liabilities and equity.

7.5. Importance of Capital Structure

The importance of the capital structure of a company is to make capital structure decisions. The importance of the capital structure of a company is to make capital structure decisions. The importance of the capital structure of a company is to make capital structure decisions.

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→ Myer's pecking order theory: the owner-capital will not be able to raise capital from the market.

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continued from page 10

1. *Journal of the American Medical Association*, 1997; 277: 1033-1037.

■ **How to use this book** The book is divided into three parts. Part I contains the chapters on the basic concepts of the theory of the firm, the theory of the market, and the theory of the economy. Part II contains the chapters on the theory of the firm, the theory of the market, and the theory of the economy. Part III contains the chapters on the theory of the firm, the theory of the market, and the theory of the economy.

81. $\frac{1}{2} \ln 2$ and $\frac{1}{2} \ln 2$ are the only values α and β such that the matrix structure of A is the same for all α and β .

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10. *Chlorophyll a* and *Chlorophyll b* were determined by the method of Lichtenthal and Whistler (1973).

1997, 1998, 1999, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025, 2026, 2027, 2028, 2029, 2030, 2031, 2032, 2033, 2034, 2035, 2036, 2037, 2038, 2039, 2040, 2041, 2042, 2043, 2044, 2045, 2046, 2047, 2048, 2049, 2050, 2051, 2052, 2053, 2054, 2055, 2056, 2057, 2058, 2059, 2060, 2061, 2062, 2063, 2064, 2065, 2066, 2067, 2068, 2069, 2070, 2071, 2072, 2073, 2074, 2075, 2076, 2077, 2078, 2079, 2080, 2081, 2082, 2083, 2084, 2085, 2086, 2087, 2088, 2089, 2090, 2091, 2092, 2093, 2094, 2095, 2096, 2097, 2098, 2099, 2100, 2101, 2102, 2103, 2104, 2105, 2106, 2107, 2108, 2109, 2110, 2111, 2112, 2113, 2114, 2115, 2116, 2117, 2118, 2119, 2120, 2121, 2122, 2123, 2124, 2125, 2126, 2127, 2128, 2129, 2130, 2131, 2132, 2133, 2134, 2135, 2136, 2137, 2138, 2139, 2140, 2141, 2142, 2143, 2144, 2145, 2146, 2147, 2148, 2149, 2150, 2151, 2152, 2153, 2154, 2155, 2156, 2157, 2158, 2159, 2160, 2161, 2162, 2163, 2164, 2165, 2166, 2167, 2168, 2169, 2170, 2171, 2172, 2173, 2174, 2175, 2176, 2177, 2178, 2179, 2180, 2181, 2182, 2183, 2184, 2185, 2186, 2187, 2188, 2189, 2190, 2191, 2192, 2193, 2194, 2195, 2196, 2197, 2198, 2199, 2200, 2201, 2202, 2203, 2204, 2205, 2206, 2207, 2208, 2209, 2210, 2211, 2212, 2213, 2214, 2215, 2216, 2217, 2218, 2219, 2220, 2221, 2222, 2223, 2224, 2225, 2226, 2227, 2228, 2229, 2230, 2231, 2232, 2233, 2234, 2235, 2236, 2237, 2238, 2239, 2240, 2241, 2242, 2243, 2244, 2245, 2246, 2247, 2248, 2249, 2250, 2251, 2252, 2253, 2254, 2255, 2256, 2257, 2258, 2259, 2260, 2261, 2262, 2263, 2264, 2265, 2266, 2267, 2268, 2269, 2270, 2271, 2272, 2273, 2274, 2275, 2276, 2277, 2278, 2279, 2280, 2281, 2282, 2283, 2284, 2285, 2286, 2287, 2288, 2289, 2290, 2291, 2292, 2293, 2294, 2295, 2296, 2297, 2298, 2299, 2300, 2301, 2302, 2303, 2304, 2305, 2306, 2307, 2308, 2309, 2310, 2311, 2312, 2313, 2314, 2315, 2316, 2317, 2318, 2319, 2320, 2321, 2322, 2323, 2324, 2325, 2326, 2327, 2328, 2329, 2330, 2331, 2332, 2333, 2334, 2335, 2336, 2337, 2338, 2339, 2340, 2341, 2342, 2343, 2344, 2345, 2346, 2347, 2348, 2349, 2350, 2351, 2352, 2353, 2354, 2355, 2356, 2357, 2358, 2359, 2360, 2361, 2362, 2363, 2364, 2365, 2366, 2367, 2368, 2369, 2370, 2371, 2372, 2373, 2374, 2375, 2376, 2377, 2378, 2379, 2380, 2381, 2382, 2383, 2384, 2385, 2386, 2387, 2388, 2389, 2390, 2391, 2392, 2393, 2394, 2395, 2396, 2397, 2398, 2399, 2400, 2401, 2402, 2403, 2404, 2405, 2406, 2407, 2408, 2409, 2410, 2411, 2412, 2413, 2414, 2415, 2416, 2417, 2418, 2419, 2420, 2421, 2422, 2423, 2424, 2425, 2426, 2427, 2428, 2429, 2430, 2431, 2432, 2433, 2434, 2435, 2436, 2437, 2438, 2439, 2440, 2441, 2442, 2443, 2444, 2445, 2446, 2447, 2448, 2449, 2450, 2451, 2452, 2453, 2454, 2455, 2456, 2457, 2458, 2459, 2460, 2461, 2462, 2463, 2464, 2465, 2466, 2467, 2468, 2469, 2470, 2471, 2472, 2473, 2474, 2475, 2476, 2477, 2478, 2479, 2480, 2481, 2482, 2483, 2484, 2485, 2486, 2487, 2488, 2489, 2490, 2491, 2492, 2493, 2494, 2495, 2496, 2497, 2498, 2499, 2500, 2501, 2502, 2503, 2504, 2505, 2506, 2507, 2508, 2509, 2510, 2511, 2512, 2513, 2514, 2515, 2516, 2517, 2518, 2519, 2520, 2521, 2522, 2523, 2524, 2525, 2526, 2527, 2528, 2529, 2530, 2531, 2532, 2533, 2534, 2535, 2536, 2537, 2538, 2539, 2540, 2541, 2542, 2543, 2544, 2545, 2546, 2547, 2548, 2549, 2550, 2551, 2552, 2553, 2554, 2555, 2556, 2557, 2558, 2559, 2560, 2561, 2562, 2563, 2564, 2565, 2566, 2567, 2568, 2569, 2570, 2571, 2572, 2573, 2574, 2575, 2576, 2577, 2578, 2579, 2580, 2581, 2582, 2583, 2584, 2585, 2586, 2587, 2588, 2589, 2590, 2591, 2592, 2593, 2594, 2595, 2596, 2597, 2598, 2599, 2600, 2601, 2602, 2603, 2604, 2605, 2606, 2607, 2608, 2609, 2610, 2611, 2612, 2613, 2614, 2615, 2616, 2617, 2618, 2619, 2620, 2621, 2622, 2623, 2624, 2625, 2626, 2627, 2628, 2629, 2630, 2631, 2632, 2633, 2634, 2635, 2636, 2637, 2638, 2639, 2640, 2641, 2642, 2643, 2644, 2645, 2646, 2647, 2648, 2649, 2650, 2651, 2652, 2653, 2654, 2655, 2656, 2657, 2658, 2659, 2660, 2661, 2662, 2663, 2664, 2665, 2666, 2667, 2668, 2669, 2670, 2671, 2672, 2673, 2674, 2675, 2676, 2677, 2678, 26

From these results we conclude that the \mathbb{R}^n -valued function \mathbf{f} is a solution of the system (1) if and only if it satisfies the system of equations (2).

concluded that the proposed L2B1 L2B1*2g Culture Unit-Unit 200 (as proposed) of the Addition is

Abstract Monitoring evaluations of 103 better regulators and other regulators against different

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Assume the initial structure of

- Fig. 1. $\frac{F_1}{F_0}$ vs. $\frac{V_1}{V_0}$.

1. The first point to be made is that the capital structure of a firm is not a static concept. It is a dynamic one, and it changes over time. The capital structure of a firm is determined by a number of factors, including the firm's size, its industry, its growth prospects, and its risk profile. The capital structure of a firm is also influenced by the financial environment in which it operates. For example, in a market with high interest rates, a firm may be more inclined to use debt financing than in a market with low interest rates.

2. The second point to be made is that the capital structure of a firm is not a one-time decision. It is a continuous process, and it requires ongoing monitoring and adjustment. The capital structure of a firm should be reviewed regularly, and it should be adjusted as needed to reflect changes in the firm's financial position and the financial environment.

3. The third point to be made is that the capital structure of a firm is not a purely financial decision. It is also a strategic decision, and it should be made in conjunction with the firm's overall business strategy. The capital structure of a firm should be designed to support the firm's growth and expansion plans, and it should be consistent with the firm's risk management strategy.

4. The fourth point to be made is that the capital structure of a firm is not a purely technical decision. It is also a managerial decision, and it should be made by the firm's management. The capital structure of a firm should be designed to reflect the firm's management's view of the firm's financial position and the financial environment, and it should be consistent with the firm's management's risk management strategy.

5. The fifth point to be made is that the capital structure of a firm is not a purely theoretical decision. It is also a practical decision, and it should be made based on the firm's actual financial position and the actual financial environment. The capital structure of a firm should be designed to reflect the firm's actual financial position and the actual financial environment, and it should be consistent with the firm's actual risk management strategy.

6. The sixth point to be made is that the capital structure of a firm is not a purely individual decision. It is also a collective decision, and it should be made by the firm's board of directors. The capital structure of a firm should be designed to reflect the firm's board of directors' view of the firm's financial position and the financial environment, and it should be consistent with the firm's board of directors' risk management strategy.

7. The seventh point to be made is that the capital structure of a firm is not a purely short-term decision. It is also a long-term decision, and it should be made with a long-term perspective. The capital structure of a firm should be designed to support the firm's long-term growth and expansion plans, and it should be consistent with the firm's long-term risk management strategy.

8. The eighth point to be made is that the capital structure of a firm is not a purely domestic decision. It is also an international decision, and it should be made with an international perspective. The capital structure of a firm should be designed to reflect the firm's international financial position and the international financial environment, and it should be consistent with the firm's international risk management strategy.

9. The ninth point to be made is that the capital structure of a firm is not a purely financial decision. It is also a legal decision, and it should be made in accordance with the firm's legal obligations. The capital structure of a firm should be designed to reflect the firm's legal obligations, and it should be consistent with the firm's legal risk management strategy.

10. The tenth point to be made is that the capital structure of a firm is not a purely technical decision. It is also a managerial decision, and it should be made by the firm's management. The capital structure of a firm should be designed to reflect the firm's management's view of the firm's financial position and the financial environment, and it should be consistent with the firm's management's risk management strategy.

11. The eleventh point to be made is that the capital structure of a firm is not a purely theoretical decision. It is also a practical decision, and it should be made based on the firm's actual financial position and the actual financial environment. The capital structure of a firm should be designed to reflect the firm's actual financial position and the actual financial environment, and it should be consistent with the firm's actual risk management strategy.

12. The twelfth point to be made is that the capital structure of a firm is not a purely individual decision. It is also a collective decision, and it should be made by the firm's board of directors. The capital structure of a firm should be designed to reflect the firm's board of directors' view of the firm's financial position and the financial environment, and it should be consistent with the firm's board of directors' risk management strategy.

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to demonstrate the stability of the capital structure of a firm should be such that it can generate adequate and stable cash flows if interest payments have no significant effect on the firm's operating performance. The firm also retains the flexibility to alter its capital structure.

■ **Flexibility of the capital structure.** The capital structure should be very flexible at the capital market level. Thus, the access to external sources of raising new money, additionally or additionally with changing needs of the company, is a capital structure, which is not a rigid, but a flexible capital structure. These sources include new debt and equity. The preference shares are convertible securities, which can be redeemed at the discretion of the company. Another source of flexibility is the capital structure.

1990-1991

My work already indicated that the capital structure of a firm is said to be optimal when the firm is in financial equilibrium and the market price of its shares is maximized. Although the paper does not really aim at providing a simple and convincing argument for the expectation of the corporate financial structure, it does, at the very least, give some identification of the features of an optimal capital structure in practice.

41) Conservation of capital structure The capital structure has no effect on the value of the firm. It is a myth that the capital structure affects the value of the firm. The value of the firm is determined by its operating performance and not by its capital structure.

42) Irrelevant decisions of capital structure It is irrelevant to decide whether the firm should use more debt or more equity. The decision to use more debt or more equity is irrelevant to the value of the firm. The value of the firm is determined by its operating performance and not by its capital structure.

43) Preservation of the firm The capital structure has no effect on the value of the firm. It is a myth that the capital structure affects the value of the firm. The value of the firm is determined by its operating performance and not by its capital structure.

44) Minimizing the agency cost of debt The capital structure has no effect on the value of the firm. It is a myth that the capital structure affects the value of the firm. The value of the firm is determined by its operating performance and not by its capital structure.

45) Maximizing the value of the firm The capital structure has no effect on the value of the firm. It is a myth that the capital structure affects the value of the firm. The value of the firm is determined by its operating performance and not by its capital structure.

Features of Optimum Capital Structure

- 1) Minimization of the cost of capital - Minimization of the cost of capital
- 2) Minimization of agency costs - Minimization of agency costs
- 3) Maximization of the value of the firm - Maximization of the value of the firm
- 4) Minimization of the market price of equity shares - Minimization of the market price of equity shares
- 5) Maximum possible use of financial leverage - Maximum possible use of financial leverage
- 6) Greater advantage of the leverage - Greater advantage of the leverage
- 7) Absence of higher financial risk - Absence of higher financial risk

Capital Structure Theories

1) Modigliani-Miller (M-M) Theory The M-M theory states that the value of the firm is independent of its capital structure. It is a myth that the capital structure affects the value of the firm. The value of the firm is determined by its operating performance and not by its capital structure.

2) Pecking Order Theory The pecking order theory states that the firm's capital structure is determined by its investment opportunities. It is a myth that the capital structure affects the value of the firm. The value of the firm is determined by its operating performance and not by its capital structure.

3) Trade-off Theory The trade-off theory states that the firm's capital structure is determined by the trade-off between the tax benefits of debt and the costs of financial distress. It is a myth that the capital structure affects the value of the firm. The value of the firm is determined by its operating performance and not by its capital structure.

4) Agency Cost Theory The agency cost theory states that the firm's capital structure is determined by the agency costs of debt. It is a myth that the capital structure affects the value of the firm. The value of the firm is determined by its operating performance and not by its capital structure.

5) Signaling Theory The signaling theory states that the firm's capital structure is determined by the signals sent by the firm to the market. It is a myth that the capital structure affects the value of the firm. The value of the firm is determined by its operating performance and not by its capital structure.

6) Stakeholder Theory The stakeholder theory states that the firm's capital structure is determined by the interests of the stakeholders. It is a myth that the capital structure affects the value of the firm. The value of the firm is determined by its operating performance and not by its capital structure.

7) Resource Dependence Theory The resource dependence theory states that the firm's capital structure is determined by its dependence on external resources. It is a myth that the capital structure affects the value of the firm. The value of the firm is determined by its operating performance and not by its capital structure.

8) Stakeholder Theory The stakeholder theory states that the firm's capital structure is determined by the interests of the stakeholders. It is a myth that the capital structure affects the value of the firm. The value of the firm is determined by its operating performance and not by its capital structure.

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13) Resource Dependence Theory The resource dependence theory states that the firm's capital structure is determined by its dependence on external resources. It is a myth that the capital structure affects the value of the firm. The value of the firm is determined by its operating performance and not by its capital structure.

This hypothesis is based on the following assumptions:

- There are no personal taxes on net income (dividends interest).
- The cost of debt is equal to less than the cost of equity capital, i.e. $r_D < r_E$.
- Any change in the financial structure in the debt market is the result of a decision to change the capital structure of the firm to reduce risk.
- The cost of debt capital and the cost of equity capital are both constant and independent of any change in the debt-equity ratio of the firm.

The value of the firm, on the basis of the above hypothesis, is determined as follows:

$$V = D + E$$

where V = Value of the firm

D = Market Value of the Equity

E = Market Value of the Debt

Again, the market value of the equity capitalised can be expressed as follows:

$$E = \frac{E_1}{r_E}$$

where E_1 = Earnings available for equity shareholders or Equity Earnings
 r_E = Cost of equity capitalised or the equity capitalisation rate

$$\text{Hence } E = \frac{EPS_1}{r_E} = \frac{EPS_1}{k_E}$$

where EPS_1 = Earnings Capitalised at the end of the first year

k_E = Expected market price of the equity share and

k_D = Expected growth rate of dividend payments

Since we have assumed that a firm pays 100% of its earnings as dividends, the percentage of earnings retained will be zero.

In our case, $g = 0$ where g = retention rate.

and $r = \text{rate of return on equity shares}$

But, on the basis of our previous assumption, $r = r_D$ and therefore, $r = 0$

$$k_E = \frac{EPS_1}{EPS_1}$$

In operational terms, we can say that $k_E = EPS_1$,

where EPS_1 = Earnings Per Share (EPS) at the end of the first year

$$k_E = \frac{EPS_1}{EPS_1}$$

N = Number of outstanding equity shares, then

$$\text{We can write } E = \frac{EPS_1 \cdot N}{k_E} = \frac{E_1}{k_E}$$

$$= \frac{\text{Earnings available to the equity shareholders or Equity Earnings}}{\text{Total Market value of equity shares}}$$

or

Thus, A is equal to:

Example 2.7: A company before interest and tax (EBIT) is Rs. 1000 and total market value is Rs. 1000.

The market value of debt capitalised is Rs. 200 and the following:

$$r_D = 10\% \text{ where } r_D = \text{the cost of debt capital and}$$

r_E = total market value of equity

$$r_E = 15\%$$

The overall cost of capital (k_A) can be determined as the weighted average of the costs of debt and equity capitalised.

$$k_A = w_D \cdot r_D + w_E \cdot r_E$$

where w_D = Proportion of market value of debt capitalised in the total value of the firm
 w_E = the relative weight of the debt capitalised and

r_D = Proportion of market value of equity capitalised in the total value of the firm
 r_E = the relative weight of the equity capitalised

$$k_A = \frac{D}{V} \cdot r_D + \frac{E}{V} \cdot r_E = \frac{D}{D+E} \cdot r_D + \frac{E}{D+E} \cdot r_E$$

$$= \frac{100}{100+200} \cdot 10\% + \frac{200}{100+200} \cdot 15\%$$

$$= \frac{100}{300} \cdot 10\% + \frac{200}{300} \cdot 15\% = 13.33\% \text{ and } k_A = 13.33\%$$

$$\text{Total value of the firm (V)} = \frac{EBIT}{k_A}$$

Example 2.8:

P Ltd. has operating income of Rs. 1000 and its cost of equity is 10% and cost of debt is 5%. The amount of debt capitalised is Rs. 200.

a) What is the value of the firm? Find the overall cost of capital (k_A).

b) What is the value of the firm and corresponding overall cost of capital if the structure of debt capital increases to Rs. 300?



Problem 1

1. The equilibrium of the value of the price of the good is determined by the supply and demand curves.

Supply curve: $Q_s = 100 + 10P$

Demand curve: $Q_d = 400 - 10P$

Find the equilibrium price.

The supply and demand are equal at equilibrium.

Equilibrium price is:

Set the supply and demand equal to each other:

$$100 + 10P = 400 - 10P$$

$$20P = 300$$

$$P = 15$$

Therefore, the equilibrium price is 15.

At this price, the quantity demanded is:

Substitute $P = 15$ into the demand curve:

$$Q_d = 400 - 10(15) = 250$$

$$Q_s = 100 + 10(15) = 250$$

$$Q_s = Q_d = 250$$

$$Q_s = 250$$

$$Q_d = 250$$

2. The equilibrium of the value of the price of the good is determined by the supply and demand curves.

Supply curve: $Q_s = 100 + 10P$

Demand curve: $Q_d = 400 - 10P$

Find the equilibrium price.

The supply and demand are equal at equilibrium.

$$100 + 10P = 400 - 10P$$

$$20P = 300$$

$$P = 15$$

Therefore, the equilibrium price is 15.

$$Q_s = 250$$

$$Q_d = 250$$

At this price, the quantity demanded is:

Substitute $P = 15$ into the demand curve:

$$Q_d = 400 - 10(15) = 250$$

The quantity supplied is:

$$Q_s = 100 + 10(15) = 250$$

Therefore, the equilibrium price is 15.

The quantity demanded is 250 and the quantity supplied is 250.

Therefore, the equilibrium price is 15.

The quantity demanded is 250 and the quantity supplied is 250.

Therefore, the equilibrium price is 15.

$$Q_s = 250$$

$$Q_d = 250$$

$$Q_s = 250$$

Therefore, the equilibrium price is 15.

$$Q_s = 250$$

the other hand if the firm were to debt

if the financial leverage is $\frac{D}{D+E}$ then $\frac{D}{D+E} = \frac{D}{E}$

These relationships have been indicated in Fig. 1. The graph shows the relationship between the degree of leverage and the cost of capital.



Fig. 1

debt capital need not exactly equal the overall cost of capital which is determined by the value of the firm which is determined by the degree of leverage.

3. Criticism of Net Income Approach

The principal criticism of the Net Income approach is that it assumes that the cost of debt capital and the cost of equity capital are independent of the degree of leverage. This is not true. The cost of debt capital is independent of the degree of leverage, but the cost of equity capital is not. As the degree of leverage increases, the cost of equity capital also increases. Therefore, the Net Income approach is not valid.

3.1.2. Net Operating Income (NOI) Approach

The Net Operating Income (NOI) approach involves the assumption of constant operating income and the assumption of constant operating income. This approach is also known as the 'E' approach. According to this approach, the value of a firm is not affected by the change in its capital structure. This theory indicates that the market price of shares and the overall cost of capital would be independent of the degree of financial leverage if a firm always pays a constant dividend. However, this theory is not valid because the market price of shares and the overall cost of capital are affected by the change in its capital structure.

This theory is based on the following assumptions:

- (1) The overall cost of capital K_A remains constant for all degrees of financial leverage.

The overall cost of capital K_A is the weighted average of the cost of debt capital K_D and the cost of equity capital K_E . The overall cost of capital K_A is given by the following equation:

$$K_A = \frac{D}{D+E} K_D + \frac{E}{D+E} K_E$$

where D is the degree of leverage, E is the degree of equity capital, K_D is the cost of debt capital, and K_E is the cost of equity capital.

The overall cost of capital K_A is independent of the degree of leverage if the cost of debt capital K_D is independent of the degree of leverage and the cost of equity capital K_E is independent of the degree of leverage.

The overall cost of capital K_A is independent of the degree of leverage if the cost of debt capital K_D is independent of the degree of leverage and the cost of equity capital K_E is independent of the degree of leverage.

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The overall cost of capital K_A is independent of the degree of leverage if the cost of debt capital K_D is independent of the degree of leverage and the cost of equity capital K_E is independent of the degree of leverage.

The overall cost of capital K_A is independent of the degree of leverage if the cost of debt capital K_D is independent of the degree of leverage and the cost of equity capital K_E is independent of the degree of leverage.

The overall cost of capital K_A is independent of the degree of leverage if the cost of debt capital K_D is independent of the degree of leverage and the cost of equity capital K_E is independent of the degree of leverage.

The overall cost of capital K_A is independent of the degree of leverage if the cost of debt capital K_D is independent of the degree of leverage and the cost of equity capital K_E is independent of the degree of leverage.

is equal to the expected return on the firm's capital, r , which is the return on the firm's capital.

• Critique of the Traditional Approach

Many have argued that the traditional approach is flawed because:

- (i) It assumes that the firm's operating income is constant.
- (ii) It assumes that the firm's capital structure is constant.
- (iii) It assumes that the firm's risk is constant.

For the capital structure to be optimal, the firm must:

- (i) Maximize its value.
- (ii) Minimize its risk.
- (iii) Maximize its return on capital.

debt-equity planning can simply change the way in which the profit and risk attached to it are distributed between its equity holders on the one hand, and its debt holders on the other. If the firm is to maximize its value, it must choose the values of these probabilities and interest rates that are optimal.



Figure 10.1: The relationship between the firm's value and its capital structure.

Illustration 3.

A firm has the following operating characteristics and is currently operating at a level of investment that is optimal.

Initial Investment: £100 million

Equity Capitalisation Rate/Cost of Equity (r_E)

at 100% debt: 15%

(b) with 40% Debt and 60% Equity: 10%

(c) with 60% Debt and 40% Equity: 8%

The firm's return on capital (ROIC) is 10% and its return on debt (ROD) is 5%.

Determine the market value of the firm using the traditional approach.

Assumptions of the firm's capital structure and traditional approach

| Particulars | at 100% Debt | at 60% Debt | at 40% Debt |
|---|--------------|-------------|-------------|
| Initial Investment | 100 | 100 | 100 |
| Debt | 100 | 60 | 40 |
| Equity | 0 | 40 | 60 |
| Return on Capital (ROIC) | 10% | 10% | 10% |
| Return on Debt (ROD) | 5% | 5% | 5% |
| Return on Equity (ROE) | 15% | 10% | 8% |
| Cost of Equity (r_E) | 15% | 10% | 8% |
| Cost of Debt (r_D) | 5% | 5% | 5% |
| Weighted Average Cost of Capital (WACC) | 10% | 10% | 10% |
| Market Value of the Firm | 100 | 100 | 100 |

Assumptions

The firm's operating income is constant and its capital structure is constant. The firm's return on capital (ROIC) is 10% and its return on debt (ROD) is 5%. The firm's return on equity (ROE) is 15% at 100% debt, 10% at 60% debt, and 8% at 40% debt. The firm's cost of equity (r_E) is 15% at 100% debt, 10% at 60% debt, and 8% at 40% debt. The firm's cost of debt (r_D) is 5% at 100% debt, 5% at 60% debt, and 5% at 40% debt. The firm's weighted average cost of capital (WACC) is 10% at 100% debt, 10% at 60% debt, and 10% at 40% debt.

The firm's market value is 100 at 100% debt, 100 at 60% debt, and 100 at 40% debt. The firm's market value is 100 at 100% debt, 100 at 60% debt, and 100 at 40% debt. The firm's market value is 100 at 100% debt, 100 at 60% debt, and 100 at 40% debt.

The Modigliani-Miller Hypothesis

The Modigliani-Miller Hypothesis states that the value of a firm is independent of its capital structure. The firm's value is determined by its operating income and its risk. The firm's value is 100 at 100% debt, 100 at 60% debt, and 100 at 40% debt. The firm's value is 100 at 100% debt, 100 at 60% debt, and 100 at 40% debt. The firm's value is 100 at 100% debt, 100 at 60% debt, and 100 at 40% debt.

Assumptions of the M-M hypothesis

The M-M hypothesis is based on the following assumptions:

(a) The capital markets are perfect. The assumptions require that

(i) the companies are long and sell securities

(ii) the selling price is constant in buying and selling the securities and there is no discount for illiquidity and transaction costs

(iii) the individual firm is allowed to float better debt

(iv) the market is perfect in that it requires less the initial investment value is highly divisible or the company is big and

(v) securities are infinitely divisible and

(vi) securities are sold before maturity and there is no risk

(b) Investors have better opportunities regarding debt and equity financing. Thus, in practice, the value of a firm, the investor's portfolio return opportunities regarding the M-M of a firm

(c) Business risks are constant for all firms having similar operating characteristics of the company. However, if a firm has lower standard risk, lower risk, they can be regarded as a financing risk firm

(d) The risk of leverage is defined in terms of the variability of the net operating income, EBIT. This risk depends on the nature of the business of the company, V , and the degree of the debt value of MCM (see the subsequent chapter)

(e) The dividend payout is constant per unit. The firm distributes all net income to the shareholders as dividends

(f) There is no tax on corporate income. The original hypothesis of the M-M hypothesis is based on the absence of corporate taxes. However, this hypothesis has been revised later by M-M to be for dividend as a separate payment. The propositions of the M-M theory are listed as follows:

Proposition I

This proposition indicates that the value of a firm (V) and the overall cost of capital (K_A) are independent of the capital structure

$$\text{MVE } V = S + D = \frac{EBIT}{K_A}$$

$$K_A = \frac{EBIT}{V} = \left(\frac{D}{V} \right) K_D + \left(\frac{S}{V} \right) K_E$$

where V = Value of the firm

D = Market value of equity capital

(i) the value of the firm is independent of the capital structure

(ii) the value of the firm is independent of the capital structure

(iii) the value of the firm is independent of the capital structure

(iv) the value of the firm is independent of the capital structure

The M-M hypothesis is based on the following assumptions: (i) the capital markets are perfect. The assumptions require that (a) the companies are long and sell securities (b) the selling price is constant in buying and selling the securities and there is no discount for illiquidity and transaction costs (c) the individual firm is allowed to float better debt (d) the market is perfect in that it requires less the initial investment value is highly divisible or the company is big and (e) securities are infinitely divisible and (f) securities are sold before maturity and there is no risk

(b) Investors have better opportunities regarding debt and equity financing. Thus, in practice, the value of a firm, the investor's portfolio return opportunities regarding the M-M of a firm (c) Business risks are constant for all firms having similar operating characteristics of the company. However, if a firm has lower standard risk, lower risk, they can be regarded as a financing risk firm (d) The risk of leverage is defined in terms of the variability of the net operating income, EBIT. This risk depends on the nature of the business of the company, V , and the degree of the debt value of MCM (see the subsequent chapter) (e) The dividend payout is constant per unit. The firm distributes all net income to the shareholders as dividends (f) There is no tax on corporate income. The original hypothesis of the M-M hypothesis is based on the absence of corporate taxes. However, this hypothesis has been revised later by M-M to be for dividend as a separate payment. The propositions of the M-M theory are listed as follows:

Proposition I

The following are the debt financing hypotheses A and B regarding the M-M hypothesis

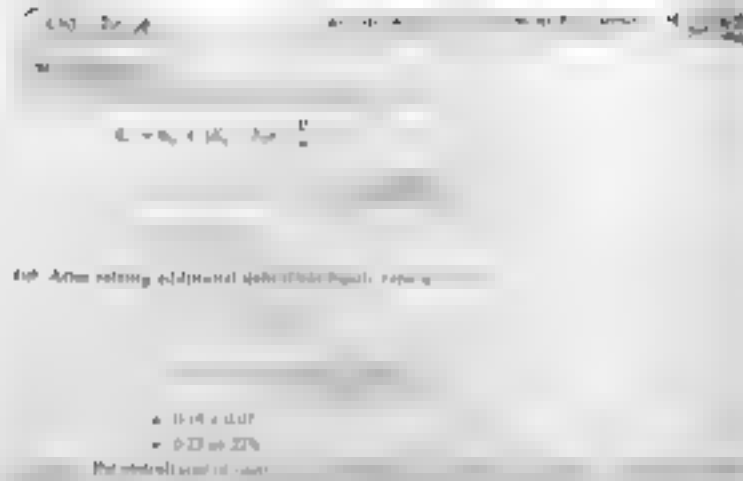
| | Hypothesis A | Hypothesis B |
|---------------------------------|--------------|--------------|
| Value of unlevered company | \$1,000 | \$1,000 |
| Debt (before tax costs) | \$250 | \$250 |
| Debt (after tax costs) | \$187.50 | \$187.50 |
| Equity value (before tax costs) | \$750 | \$750 |
| Equity value (after tax costs) | \$750 | \$750 |

All profits after debt service are distributed as dividends

Capital structure M-M hypothesis is based on the assumption that the value of a firm is independent of the capital structure. The M-M hypothesis is based on the following assumptions: (i) the capital markets are perfect. The assumptions require that (a) the companies are long and sell securities (b) the selling price is constant in buying and selling the securities and there is no discount for illiquidity and transaction costs (c) the individual firm is allowed to float better debt (d) the market is perfect in that it requires less the initial investment value is highly divisible or the company is big and (e) securities are infinitely divisible and (f) securities are sold before maturity and there is no risk

Proposition II

This proposition indicates that the value of a firm (V) and the overall cost of capital (K_A) are independent of the capital structure. The M-M hypothesis is based on the following assumptions: (i) the capital markets are perfect. The assumptions require that (a) the companies are long and sell securities (b) the selling price is constant in buying and selling the securities and there is no discount for illiquidity and transaction costs (c) the individual firm is allowed to float better debt (d) the market is perfect in that it requires less the initial investment value is highly divisible or the company is big and (e) securities are infinitely divisible and (f) securities are sold before maturity and there is no risk



Because the function is continuous on the interval $[-2, 2]$, it attains its maximum and minimum values on this interval. The function is increasing on $[0, 2]$ and decreasing on $[-2, 0]$.



Because the function is continuous on the interval $[-2, 2]$, it attains its maximum and minimum values on this interval. The function is increasing on $[0, 2]$ and decreasing on $[-2, 0]$.

An Introduction to Financial Accounting

1. Determine the value of the company's equity at the end of the year. The company's equity is the difference between the company's assets and liabilities. The company's assets are the sum of the company's cash, accounts receivable, inventory, and property, plant, and equipment. The company's liabilities are the sum of the company's accounts payable, long-term debt, and other liabilities.

2. Determine the value of the company's equity at the end of the year. The company's equity is the difference between the company's assets and liabilities. The company's assets are the sum of the company's cash, accounts receivable, inventory, and property, plant, and equipment. The company's liabilities are the sum of the company's accounts payable, long-term debt, and other liabilities.

The company's equity is the difference between the company's assets and liabilities. The company's assets are the sum of the company's cash, accounts receivable, inventory, and property, plant, and equipment. The company's liabilities are the sum of the company's accounts payable, long-term debt, and other liabilities.

According to the balance sheet, the value of the company's equity is the difference between the company's assets and liabilities.

$$E = A - L$$

where E = Value of the company's equity

A = Company's total assets

L = Company's total liabilities

E = Value of the company's equity

The value of the company's equity is the difference between the company's assets and liabilities.

$$E = A - L$$

where E = Value of the company's equity

A = Value of the company's assets

L = Value of the company's liabilities

E = Value of the company's equity

Illustration 1

There are two firms, P Ltd and Q Ltd, which are exactly identical except that Q Ltd has more debt capital structure. P Ltd is an upstream firm having 1000 shares of ₹ 100 each and is represented by share capital of ₹ 1,00,000 and equity capital of ₹ 10% which is the overall cost of capital. Q Ltd has the same total assets of ₹ 1,00,000 but has a debt capital of ₹ 20,000 and equity capital of ₹ 80,000. The overall cost of capital for Q Ltd is 12%.

Using the following data, determine the value of the company's equity.

- Determine the total market value of both the firms.
- Determine the Cost of Equity (K_E) for both the firms.
- Determine the Overall Cost of Capital (K_A) for the firms.
- Identify suitable measures for the above discrepancies.

The company's equity is the difference between the company's assets and liabilities. The company's assets are the sum of the company's cash, accounts receivable, inventory, and property, plant, and equipment. The company's liabilities are the sum of the company's accounts payable, long-term debt, and other liabilities.

$$E = A - L$$

$$E = A - L$$

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The company's equity is the difference between the company's assets and liabilities.

$$E = A - L$$

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$$E = A - L$$

For interest free £1m

$$A = \frac{1}{r_1} P_1$$

$$+ \frac{1}{r_2} P_2 = \frac{1}{r_1} P_1 + \frac{1}{r_2} P_2$$

$$= \frac{1}{0.05} \times 1.05 + \frac{1}{0.05} \times 1.05$$

$$= \frac{1}{0.05} \times 2.1 = 42$$

$$= 42 \times 0.05 = 2.1$$

$$= 2.1 \times 0.05 = 0.105$$

$$= 0.105 \times 0.05 = 0.00525$$

11 The computation of interest values for P Ltd and Q Ltd can be shown as a subsidiary ledger as follows:

| Particulars | £000 | £000 | £000 | £000 | £000 | £000 |
|-------------|---------|------|--------|------|--------|------|
| P Ltd | 100,000 | 10% | 10,000 | 10% | 10,000 | 10% |
| Q Ltd | 100,000 | 10% | 10,000 | 10% | 10,000 | 10% |

Example

12 It is assumed that because of corporate taxation there is a benefit from P Ltd and Q Ltd each having a share of capital in the form of interest free £1m. The subsidiary ledger as shown above is the appropriate subsidiary ledger for P Ltd and Q Ltd. The subsidiary ledger as shown above is the appropriate subsidiary ledger for P Ltd and Q Ltd.

Subsidiary Ledger

Particulars

Amount

1. Interest free £1m

2. Interest free £1m

3. Interest free £1m

4. Interest free £1m

5. Interest free £1m

6. Interest free £1m

7. Interest free £1m

8. Interest free £1m

9. Interest free £1m

Working Notes

1. Interest free £1m

2. Interest free £1m

3. Interest free £1m

4. Interest free £1m

5. Interest free £1m

6. Interest free £1m

$$= 1.05$$

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$$= 1.05 + 1.05 = 2.1$$

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1. The firm's value is the sum of the present value of its future cash flows.

2. The firm's value is the sum of the present value of its future cash flows.

3. The firm's value is the sum of the present value of its future cash flows.

4. The firm's value is the sum of the present value of its future cash flows.

5. The firm's value is the sum of the present value of its future cash flows.

Assignment

Assignment 1: The firm's value

1. The firm's value is the sum of the present value of its future cash flows.

2. The firm's value is the sum of the present value of its future cash flows.

3. The firm's value is the sum of the present value of its future cash flows.

4. The firm's value is the sum of the present value of its future cash flows.

5. The firm's value is the sum of the present value of its future cash flows.

What Are the Key Questions?

1. What is the firm's value?
2. How is the firm's value determined?
3. What is the firm's value?
4. What is the firm's value?
5. What is the firm's value?
6. What is the firm's value?
7. What is the firm's value?
8. What is the firm's value?
9. What is the firm's value?
10. What is the firm's value?

Key Take Questions

1. What is the firm's value?
2. How is the firm's value determined?
3. What is the firm's value?
4. What is the firm's value?
5. What is the firm's value?
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10. What is the firm's value?

Capital Structure

1. The firm's value is the sum of the present value of its future cash flows.

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3. The firm's value is the sum of the present value of its future cash flows.

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17. The firm's value is the sum of the present value of its future cash flows.

18. The firm's value is the sum of the present value of its future cash flows.

19. The firm's value is the sum of the present value of its future cash flows.

DIVIDEND POLICY

QUESTIONS

- 1) **Introduction**
- 2) **Background**
- 3) **Methodology**
- 4) **Results**
- 5) **Conclusion**
- 6) **References**

2.1. Introduction

[illegible]

6.2. Monitoring and Evaluation

The same downward values in the portions of the profile of a landscape represented within a *disturbance* during the geomorphology of the overgraze. According to the literature of Chaudhary, Anandaram, & others, the overall a downward to go a *geomorphology* is characterized out of profile as various possible to be *geomorphology*, a downward to a shape of profile of the geomorphology directed towards the *geomorphology*.

Source: United Nations Development Programme

[illegible][illegible]

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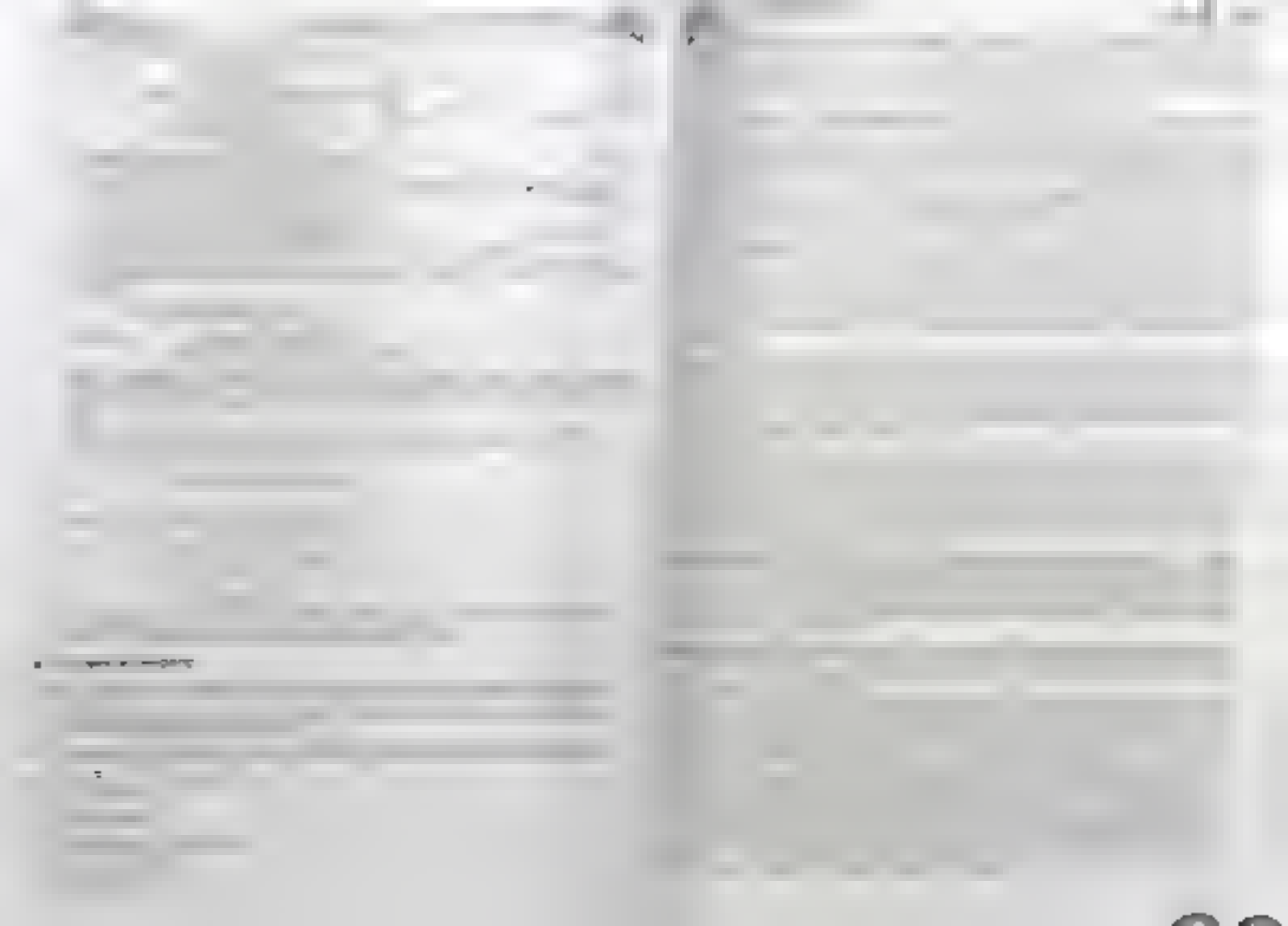
[illegible]

and 4 months with the standard and early standard

Figure 2 shows the results of the regression analysis. The regression line indicates that the probability of a firm being a regular shareholder is positively related to the size of the firm. The regression line also indicates that the probability of a firm being a regular shareholder is positively related to the size of the firm. The regression line also indicates that the probability of a firm being a regular shareholder is positively related to the size of the firm.

The cost of each repair plus an extra 20-cent postage is provided indicated by the above check number. To local dealer is then arranged.

According to J. Lashier, in his article "Translation of Sources of 'Scientific' History: 'Scientific' Language and 'Cognitive' Language", *Journal of American Studies*, 36, 1992, 2, 209-224, the following is the case:



5.4 Dividend Policy

5.5 Objectives of Dividend Policy

1. To provide a return to shareholders.
2. To provide a source of funds for the future growth of the company.
3. To provide a source of funds for the future growth of the company.
4. To provide a source of funds for the future growth of the company.
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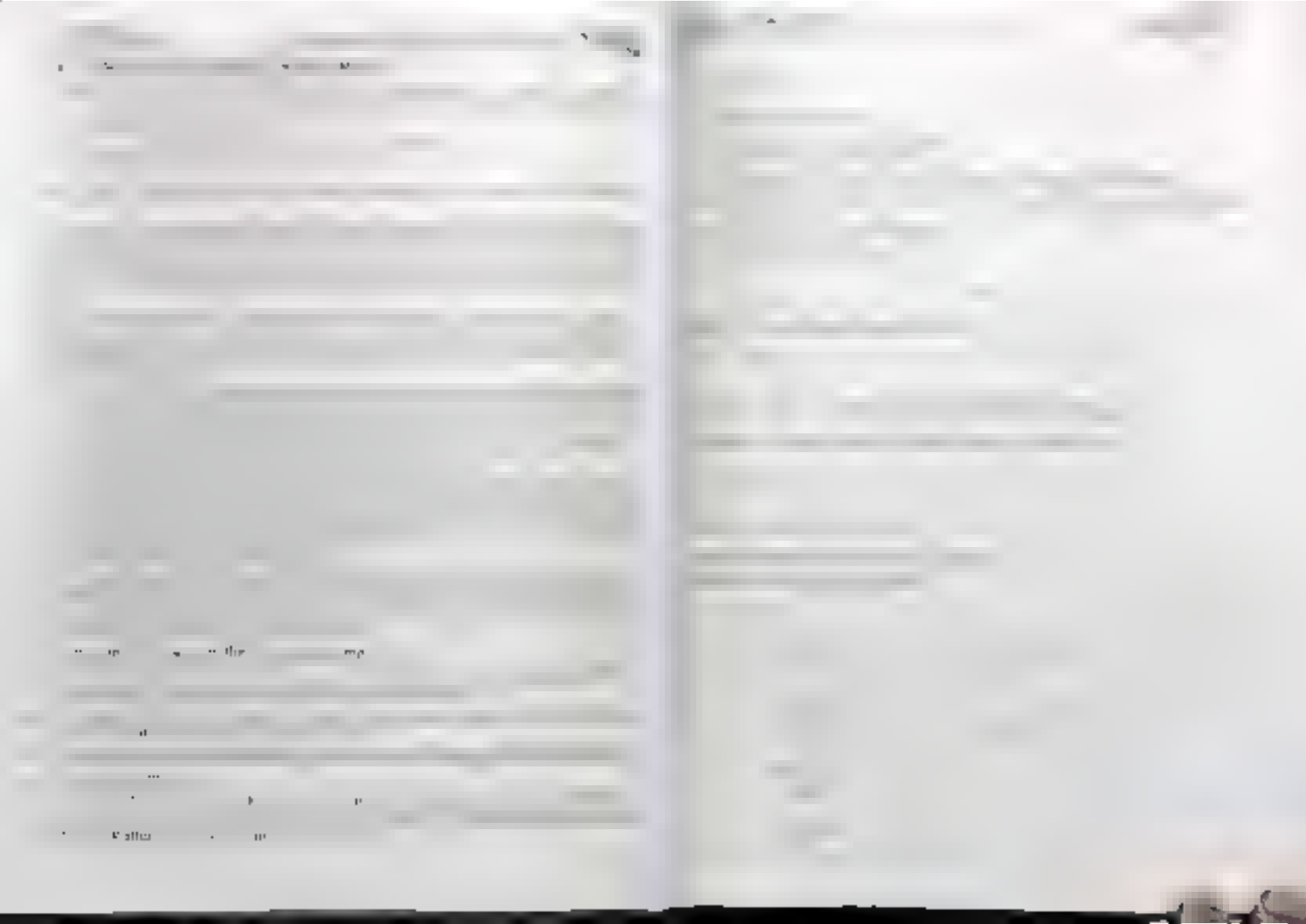
5.6 Factors Affecting Dividend Policy

5.7 Dividend Policy

5.8 Dividend Policy

5.9 Dividend Policy

5.10 Dividend Policy



Example 1

A company expects a profit of £500 million. It has the following characteristics:

| | |
|----------------------------|------|
| Share of £100 as par value | 1.00 |
| Expected return on assets | 10% |
| Expected growth rate | 4% |
| Expected return on equity | 14% |

Solution

As per the model, the market price of a share, P , is given by

$$P = \frac{D_1}{r - g}$$

where D_1 = Dividend per share

$$= £4$$

10% rate of return on investments

$$= 10\% = 0.10$$

r = cost of equity capital or required rate of return

$$= 14\% = 0.14$$

and g = Growth rate

$$= 4\%$$

Now, putting the respective values in the model, we get

$$P = \frac{£4}{0.14 - 0.04} = £40$$

∴ The price of the expected profit of a share using Walter's model is £40.

Illustration 2

A firm expects to have a capitalization rate of 10 per cent and has a return on investment of 15%. According to Walter's model, what should be the price of the share if it has a dividend per share of £2.

Solution

According to Walter's model, market price of a share, P , is given by

$$P = \frac{D_1}{r - g}$$

where

D_1 = Dividend per share i.e. £2

r = Rate of return on investments i.e. 15%

g = Growth rate of return on investments i.e. 10%

P = Capitalization rate i.e. 10%

A firm expects to have a capitalization rate of 10 per cent and has a return on investment of 15%.

According to Walter's model, what should be the price of the share if it has a dividend per share of £2.

$$P = \frac{D_1}{r - g}$$

$$= \frac{£2}{0.15 - 0.10}$$

$$= £40$$

Illustration 3

A firm expects to have a capitalization rate of 10 per cent and has a return on investment of 15%. According to Walter's model, what should be the price of the share if it has a dividend per share of £2.

| | |
|---------------------------|-----|
| Expected return on assets | 15% |
| Expected growth rate | 10% |
| Expected return on equity | 10% |
| Expected return on equity | 10% |
| Expected return on equity | 10% |

According to Walter's model, what should be the price of the share if it has a dividend per share of £2.

Solution

As per the model, the market price of a share, P , is given by

$$P = \frac{D_1}{r - g}$$

where

P = Market price of a share

D_1 = Dividend per share

r = Rate of return on investments

g = Growth rate of return on investments

$$P = \frac{£2}{0.15 - 0.10} = £40$$

r = Rate of return on investments

g = Growth rate of return on investments

P = Capitalization rate

∴ Price of the share is £40.

$$= \frac{£2}{0.15 - 0.10}$$

$$= £40$$

10%

10%

Dividend per share

Price per share

Dividend per share

Dividend per share

10%

10% (Dividend per share)

10%

Dividend per share

10%

Dividend per share

Dividend per share

Dividend per share

Dividend per share

Dividend per share

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Dividend per share

10%

Illustration 6

The following information is available on shares of a firm

Capitalisation ratio (K/P) = 10

Earnings per share (E) = 10

Assumed rate of return on investments (r) = 10%, 15%, 20% and 30%

Given the above information, calculate the market price of a share, using Walter's model. Assume

Dividend Pay-out ratio (D/P Ratio) = 20%, 30%, 40% and 100%.

Also, state the optimum dividend pay-out ratio.

Solution

According to Walter's Model, market price of a share, P is given by,

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Value of the corporation, V

Value of the corporation, V

Illustration 1

The value of a corporation is reflected in its expected returns on assets.

| | |
|------------------------------|--------------|
| Fixed assets | 10% of value |
| Net income | 10% of value |
| Dividend yield | 10% of value |
| Return on investment | 10% of value |
| Equity investment | 10% of value |
| Rate of return on investment | 10% of value |

What does the market value per share according to Gordon's Model of dividend policy?

Answer

According to Gordon's Model, the Market Price P of a share is given by:

$$P = \frac{D_1}{r - g}$$

Where:

D_1 = Dividend per share 0.10 = 10% of V , 10 cents, 10% of value company V

r = Required rate 10% or 0.10

g = Cost of Capital or Equity Capitalization rate 10% or 0.10

V = Value of the corporation, i.e., 10% or 0.10

Value of the share is the same as the

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Illustration 2

Value of the share is the same as the

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Answer

Value of the share is the same as the

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Illustration 9

A company's total investment in assets of £100,000 is split: £40,000 is invested in shares and the rest in a portfolio of bonds. The company has a policy of reinvesting its profits in the same way as the firm using assets of £40.

Solution

We can sketch a model of the Market Price of shares

$$P = \frac{D}{r}$$

where P = Market price of a share

D = Dividend per share

r = Required rate of return

or $r = 10\%$

$$40 = \frac{P}{1.1} \Rightarrow P = 44$$

A. Dividend reinvestment policy of reinvesting 40% of profits

B. Dividend reinvestment policy of reinvesting 40% of profits

or $r = 10\%$

Putting the values in the model we get

$$P = \frac{D}{r} = \frac{40}{0.1} = 400$$

Market price of a share = £400

Now, Value of firm =

$$P \times n$$

where n = Number of shares

and P = Market price of a share

$$= 400 \times 100 = 40,000$$

$$= 40,000$$

Illustration 10

The following information is available in respect of the rate of return on investment in the company's shares:

$$r = 10\%$$

Illustration 11

The following data is available in respect of the company's shares:

| Year | Dividend | Dividend Yield (%) | Market Price |
|------|----------|--------------------|--------------|
| 1990 | 10 | 10 | 100 |
| 1991 | 12 | 12 | 120 |
| 1992 | 14 | 14 | 140 |
| 1993 | 16 | 16 | 160 |
| 1994 | 18 | 18 | 180 |
| 1995 | 20 | 20 | 200 |

Solution

Using the Gordon's Model the value of shares is given by

$$P = \frac{D}{r}$$

where P = Market price of a share

D = Dividend per share

r = Required rate of return

or $r = 10\%$

A. Dividend reinvestment policy

B. Dividend reinvestment policy

The value of shares of ABC Ltd for different 'n' values and reinvestment ratios are shown in the following table

| Year | Dividend | Dividend Yield (%) | Market Price | Value of shares |
|------|----------|--------------------|--------------|-----------------|
| 1990 | 10 | 10 | 100 | 100 |
| 1991 | 12 | 12 | 120 | 120 |
| 1992 | 14 | 14 | 140 | 140 |
| 1993 | 16 | 16 | 160 | 160 |
| 1994 | 18 | 18 | 180 | 180 |
| 1995 | 20 | 20 | 200 | 200 |



Let V_0 be the value of the stock at the end of the year T . Let the shareholders $i = 1, \dots, n$ have the

- π_i = i 's share of the profit of the stock V_0
- δ = the dividend (the cash the stockholder gets) of the stock at the end of the year
- $\delta = \delta_1 = \delta_2 = \dots = \delta_n$

Then the firm's value is the sum of the present value of the

$$V_0 = \frac{\delta}{r} + \frac{V_0}{1+r}$$

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Example 1

Suppose that the price of a stock at time t is given by $S_t = S_0 e^{rt}$, where S_0 is the initial price and r is the risk-free rate. The stock is sold at time T for a price S_T . The payoff of a call option with strike price K is $\max(S_T - K, 0)$. The payoff of a put option with strike price K is $\max(K - S_T, 0)$.

Solution

The payoff of a call option is $\max(S_T - K, 0)$. The payoff of a put option is $\max(K - S_T, 0)$. The payoff of a call option is $\max(S_T - K, 0)$. The payoff of a put option is $\max(K - S_T, 0)$.

Before the expiration of the option, the holder of the option has the right to buy the stock at the strike price K .

After the expiration of the option, the holder of the option has the right to sell the stock at the strike price K .

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After the expiration of the option, the holder of the option has the right to sell the stock at the strike price K .

The payoff of a call option is $\max(S_T - K, 0)$. The payoff of a put option is $\max(K - S_T, 0)$.

$$S_T = S_0 e^{rt}$$

$$S_T = S_0 e^{rt} = S_0 e^{rt}$$

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Suppose that the price of a stock at time t is given by $S_t = S_0 e^{rt}$, where S_0 is the initial price and r is the risk-free rate. The stock is sold at time T for a price S_T . The payoff of a call option with strike price K is $\max(S_T - K, 0)$. The payoff of a put option with strike price K is $\max(K - S_T, 0)$.

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Conclusion of the Hypothesis

Indicators and time have a positive effect on the probability of a stock being sold at a price higher than the strike price. The probability of a stock being sold at a price higher than the strike price is higher when the stock price is higher than the strike price. The probability of a stock being sold at a price higher than the strike price is higher when the stock price is higher than the strike price.

Suppose that the price of a stock at time t is given by $S_t = S_0 e^{rt}$, where S_0 is the initial price and r is the risk-free rate. The stock is sold at time T for a price S_T . The payoff of a call option with strike price K is $\max(S_T - K, 0)$. The payoff of a put option with strike price K is $\max(K - S_T, 0)$.

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THE IS-LM MODEL

Y-axis: output

X-axis: interest rate

initial position of the IS curve is

Monetary expansion has a stimulative effect on output

Summary

The IS-LM model is a key tool in macroeconomics. It shows the relationship between the interest rate and output in the goods market.

The IS curve is downward sloping. It shows the relationship between the interest rate and output in the goods market. The LM curve is vertical. It shows the relationship between the interest rate and output in the money market.

The IS-LM model is used to analyze the effects of monetary policy on the economy.

Monetary expansion shifts the IS curve to the right. This leads to a higher interest rate and higher output.

Monetary contraction shifts the IS curve to the left. This leads to a lower interest rate and lower output.

The IS-LM model is a simplified representation of the economy. It does not take into account many factors that affect the economy.

Monetary policy is a key tool for the government to influence the economy. The IS-LM model is used to analyze the effects of monetary policy on the economy.

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The IS-LM model is a simplified representation of the economy. It does not take into account many factors that affect the economy.

Monetary policy is a key tool for the government to influence the economy. The IS-LM model is used to analyze the effects of monetary policy on the economy.

Assignment

1. Study the IS-LM model

1. The IS-LM model is a key tool in macroeconomics. It shows the relationship between the interest rate and output in the goods market.

2. The IS curve is downward sloping. It shows the relationship between the interest rate and output in the goods market.

3. The LM curve is vertical. It shows the relationship between the interest rate and output in the money market.

4. The IS-LM model is used to analyze the effects of monetary policy on the economy.

5. Monetary expansion shifts the IS curve to the right. This leads to a higher interest rate and higher output.

6. Monetary contraction shifts the IS curve to the left. This leads to a lower interest rate and lower output.

7. The IS-LM model is a simplified representation of the economy. It does not take into account many factors that affect the economy.

8. Monetary policy is a key tool for the government to influence the economy. The IS-LM model is used to analyze the effects of monetary policy on the economy.

9. The IS-LM model is a key tool in macroeconomics. It shows the relationship between the interest rate and output in the goods market.

10. The IS curve is downward sloping. It shows the relationship between the interest rate and output in the goods market.

Short Answer Type Questions

1. Define the IS-LM model. What is the IS curve? What is the LM curve?

Ans. 1000

2. Explain the IS-LM model. What is the IS curve? What is the LM curve?

Ans. 1000

3. Explain the IS-LM model. What is the IS curve? What is the LM curve?

Ans. 1000

4. Explain the IS-LM model. What is the IS curve? What is the LM curve?

Ans. 1000

5. Explain the IS-LM model. What is the IS curve? What is the LM curve?

Ans. 1000

6. Explain the IS-LM model. What is the IS curve? What is the LM curve?

Ans. 1000

7. Explain the IS-LM model. What is the IS curve? What is the LM curve?

Ans. 1000

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Ans. 1000

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Ans. 1000

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Ans. 1000

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Ans. 1000

5. Explain the IS-LM model. What is the IS curve? What is the LM curve?

Ans. 1000

$$Y = \frac{1}{1 + \frac{1}{\alpha} \frac{1}{\beta}} \frac{1}{\beta}$$

where α = Theoretical market value of output, β =

β = Theoretical market value of output, β =

11

12

13

14

15

16

17

18

19

| Year | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|------|-----|-----|-----|-----|-----|-----|-----|
| 1970 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| 1971 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| 1972 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| 1973 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| 1974 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| 1975 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| 1976 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| 1977 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| 1978 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| 1979 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| 1980 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| 1981 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| 1982 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| 1983 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| 1984 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| 1985 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| 1986 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| 1987 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| 1988 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| 1989 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| 1990 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| 1991 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| 1992 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| 1993 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| 1994 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| 1995 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| 1996 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| 1997 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| 1998 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| 1999 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| 2000 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| 2001 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| 2002 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| 2003 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| 2004 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| 2005 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| 2006 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| 2007 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| 2008 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| 2009 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| 2010 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| 2011 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| 2012 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| 2013 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| 2014 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| 2015 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| 2016 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| 2017 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| 2018 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| 2019 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| 2020 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| 2021 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| 2022 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| 2023 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| 2024 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| 2025 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| 2026 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| 2027 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| 2028 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| 2029 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| 2030 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| 2031 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| 2032 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| 2033 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| 2034 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| 2035 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| 2036 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| 2037 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| 2038 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| 2039 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| 2040 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| 2041 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| 2042 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| 2043 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| 2044 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| 2045 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| 2046 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| 2047 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| 2048 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| 2049 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| 2050 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| 2051 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| 2052 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| 2053 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| 2054 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| 2055 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| 2056 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| 2057 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| 2058 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| 2059 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| 2060 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| 2061 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| 2062 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| 2063 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| 2064 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| 2065 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| 2066 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| 2067 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| 2068 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| 2069 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| 2070 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| 2071 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| 2072 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| 2073 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| 2074 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| 2075 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| 2076 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| 2077 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| 2078 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| 2079 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| 2080 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| 2081 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| 2082 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| 2083 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| 2084 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| 2085 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| 2086 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| 2087 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| 2088 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| 2089 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| 2090 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| 2091 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| 2092 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| 2093 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| 2094 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| 2095 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| 2096 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| 2097 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| 2098 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| 2099 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| 2100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |

| Year | 19% | 20% | 21% | 22% | 23% | 24% | 25% | 26% |
|------|-------|-------|-------|-------|-------|-------|-------|-------|
| 1 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 |
| 2 | 1.019 | 1.038 | 1.057 | 1.076 | 1.095 | 1.114 | 1.133 | 1.152 |
| 3 | 1.038 | 1.077 | 1.116 | 1.155 | 1.194 | 1.233 | 1.272 | 1.311 |
| 4 | 1.058 | 1.117 | 1.176 | 1.235 | 1.294 | 1.353 | 1.412 | 1.471 |
| 5 | 1.077 | 1.147 | 1.216 | 1.285 | 1.354 | 1.423 | 1.492 | 1.561 |
| 6 | 1.097 | 1.178 | 1.259 | 1.339 | 1.419 | 1.499 | 1.579 | 1.658 |
| 7 | 1.117 | 1.209 | 1.300 | 1.391 | 1.482 | 1.573 | 1.664 | 1.755 |
| 8 | 1.137 | 1.240 | 1.341 | 1.442 | 1.543 | 1.644 | 1.745 | 1.846 |
| 9 | 1.157 | 1.269 | 1.370 | 1.471 | 1.572 | 1.673 | 1.774 | 1.875 |
| 10 | 1.177 | 1.290 | 1.391 | 1.492 | 1.593 | 1.694 | 1.795 | 1.896 |
| 11 | 1.197 | 1.310 | 1.411 | 1.512 | 1.613 | 1.714 | 1.815 | 1.916 |
| 12 | 1.217 | 1.330 | 1.431 | 1.532 | 1.633 | 1.734 | 1.835 | 1.936 |
| 13 | 1.237 | 1.350 | 1.451 | 1.552 | 1.653 | 1.754 | 1.855 | 1.956 |
| 14 | 1.257 | 1.370 | 1.471 | 1.572 | 1.673 | 1.774 | 1.875 | 1.976 |
| 15 | 1.277 | 1.390 | 1.491 | 1.592 | 1.693 | 1.794 | 1.895 | 1.996 |
| 16 | 1.297 | 1.410 | 1.511 | 1.612 | 1.713 | 1.814 | 1.915 | 2.016 |
| 17 | 1.317 | 1.430 | 1.531 | 1.632 | 1.733 | 1.834 | 1.935 | 2.036 |
| 18 | 1.337 | 1.450 | 1.551 | 1.652 | 1.753 | 1.854 | 1.955 | 2.056 |
| 19 | 1.357 | 1.470 | 1.571 | 1.672 | 1.773 | 1.874 | 1.975 | 2.076 |
| 20 | 1.377 | 1.490 | 1.591 | 1.692 | 1.793 | 1.894 | 1.995 | 2.096 |
| 21 | 1.397 | 1.510 | 1.611 | 1.712 | 1.813 | 1.914 | 2.015 | 2.116 |
| 22 | 1.417 | 1.530 | 1.631 | 1.732 | 1.833 | 1.934 | 2.035 | 2.136 |
| 23 | 1.437 | 1.550 | 1.651 | 1.752 | 1.853 | 1.954 | 2.055 | 2.156 |
| 24 | 1.457 | 1.570 | 1.671 | 1.772 | 1.873 | 1.974 | 2.075 | 2.176 |
| 25 | 1.477 | 1.590 | 1.691 | 1.792 | 1.893 | 1.994 | 2.095 | 2.196 |
| 26 | 1.497 | 1.610 | 1.711 | 1.812 | 1.913 | 2.014 | 2.115 | 2.216 |
| 27 | 1.517 | 1.630 | 1.731 | 1.832 | 1.933 | 2.034 | 2.135 | 2.236 |
| 28 | 1.537 | 1.650 | 1.751 | 1.852 | 1.953 | 2.054 | 2.155 | 2.256 |
| 29 | 1.557 | 1.670 | 1.771 | 1.872 | 1.973 | 2.074 | 2.175 | 2.276 |
| 30 | 1.577 | 1.690 | 1.791 | 1.892 | 1.993 | 2.094 | 2.195 | 2.296 |

[illegible]

5. 0.04

[illegible]

TABLE 3

The Compound Value of an Annuity of One Euro

[illegible]

1991, 1992, 1993

| Year | Country | Population (millions) | Urban population (millions) | Urban population (%) | Population growth rate (%) | Urban population growth rate (%) |
|------|---------|-----------------------|-----------------------------|----------------------|----------------------------|----------------------------------|
| 1980 | China | 954.0 | 190.0 | 19.9 | 1.3 | 1.3 |
| 1985 | China | 1059.0 | 210.0 | 19.8 | 1.5 | 1.5 |
| 1990 | China | 1133.0 | 230.0 | 20.3 | 1.7 | 1.7 |
| 1995 | China | 1210.0 | 250.0 | 20.7 | 1.9 | 1.9 |
| 2000 | China | 1267.0 | 270.0 | 21.3 | 2.1 | 2.1 |
| 2005 | China | 1329.0 | 290.0 | 21.8 | 2.3 | 2.3 |
| 2010 | China | 1392.0 | 310.0 | 22.3 | 2.5 | 2.5 |
| 2015 | China | 1456.0 | 330.0 | 22.7 | 2.7 | 2.7 |
| 2020 | China | 1521.0 | 350.0 | 23.0 | 2.9 | 2.9 |

1. 4. 2000

The Personal Value of Our Reports

[illegible]

TABLE 3 (Contd.)

| Year | 1% | 2% | 3% | 4% | 5% | 6% | 7% | 8% | 9% | 10% |
|------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 1 | .99 | .98 | .97 | .96 | .95 | .94 | .93 | .92 | .91 | .90 |
| 2 | .98 | .96 | .94 | .92 | .90 | .88 | .86 | .84 | .82 | .81 |
| 3 | .97 | .94 | .91 | .88 | .85 | .83 | .80 | .78 | .75 | .73 |
| 4 | .96 | .92 | .88 | .84 | .81 | .78 | .75 | .72 | .69 | .67 |
| 5 | .95 | .90 | .86 | .81 | .77 | .74 | .70 | .67 | .64 | .61 |
| 6 | .94 | .88 | .83 | .77 | .73 | .69 | .65 | .61 | .58 | .55 |
| 7 | .93 | .86 | .80 | .74 | .69 | .65 | .61 | .57 | .53 | .50 |
| 8 | .92 | .84 | .77 | .70 | .65 | .61 | .57 | .53 | .49 | .46 |
| 9 | .91 | .82 | .74 | .67 | .62 | .58 | .54 | .50 | .46 | .43 |
| 10 | .90 | .80 | .71 | .64 | .59 | .55 | .51 | .47 | .43 | .40 |
| 11 | .89 | .78 | .69 | .61 | .56 | .52 | .48 | .44 | .40 | .37 |
| 12 | .88 | .76 | .67 | .58 | .53 | .49 | .45 | .41 | .37 | .34 |
| 13 | .87 | .74 | .65 | .56 | .51 | .47 | .43 | .39 | .35 | .32 |
| 14 | .86 | .73 | .63 | .54 | .49 | .45 | .41 | .37 | .33 | .30 |
| 15 | .85 | .71 | .61 | .52 | .47 | .43 | .39 | .35 | .31 | .28 |
| 16 | .84 | .69 | .59 | .50 | .45 | .41 | .37 | .33 | .29 | .26 |
| 17 | .83 | .67 | .57 | .48 | .43 | .39 | .35 | .31 | .27 | .24 |
| 18 | .82 | .65 | .55 | .46 | .41 | .37 | .33 | .29 | .25 | .22 |
| 19 | .81 | .63 | .53 | .44 | .39 | .35 | .31 | .27 | .23 | .20 |
| 20 | .80 | .61 | .51 | .42 | .37 | .33 | .29 | .25 | .21 | .18 |
| 21 | .79 | .59 | .49 | .40 | .35 | .31 | .27 | .23 | .19 | .16 |
| 22 | .78 | .57 | .47 | .38 | .33 | .29 | .25 | .21 | .17 | .14 |
| 23 | .77 | .55 | .45 | .36 | .31 | .27 | .23 | .19 | .15 | .12 |
| 24 | .76 | .53 | .43 | .34 | .29 | .25 | .21 | .17 | .13 | .10 |
| 25 | .75 | .51 | .41 | .32 | .27 | .23 | .19 | .15 | .11 | .08 |
| 26 | .74 | .49 | .39 | .30 | .25 | .21 | .17 | .13 | .09 | .06 |
| 27 | .73 | .47 | .37 | .28 | .23 | .19 | .15 | .11 | .07 | .04 |
| 28 | .72 | .45 | .35 | .26 | .21 | .17 | .13 | .09 | .05 | .03 |
| 29 | .71 | .43 | .33 | .24 | .19 | .15 | .11 | .07 | .03 | .02 |
| 30 | .70 | .41 | .31 | .22 | .17 | .13 | .09 | .05 | .02 | .01 |

| Year | 1% | 2% | 3% | 4% | 5% | 6% | 7% | 8% | 9% | 10% |
|------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 1 | .99 | .98 | .97 | .96 | .95 | .94 | .93 | .92 | .91 | .90 |
| 2 | .98 | .96 | .94 | .92 | .90 | .88 | .86 | .84 | .82 | .81 |
| 3 | .97 | .94 | .91 | .88 | .85 | .83 | .80 | .78 | .75 | .73 |
| 4 | .96 | .92 | .88 | .84 | .81 | .78 | .75 | .72 | .69 | .67 |
| 5 | .95 | .90 | .86 | .81 | .77 | .74 | .70 | .67 | .64 | .61 |
| 6 | .94 | .88 | .83 | .77 | .73 | .69 | .65 | .61 | .58 | .55 |
| 7 | .93 | .86 | .80 | .74 | .69 | .65 | .61 | .57 | .53 | .50 |
| 8 | .92 | .84 | .77 | .70 | .65 | .61 | .57 | .53 | .49 | .46 |
| 9 | .91 | .82 | .74 | .67 | .62 | .58 | .54 | .50 | .46 | .43 |
| 10 | .90 | .80 | .71 | .64 | .59 | .55 | .51 | .47 | .43 | .40 |

TABLE 3 (Contd.)

| Year | 1% | 2% | 3% | 4% | 5% | 6% | 7% | 8% | 9% | 10% |
|------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 1 | .99 | .98 | .97 | .96 | .95 | .94 | .93 | .92 | .91 | .90 |
| 2 | .98 | .96 | .94 | .92 | .90 | .88 | .86 | .84 | .82 | .81 |
| 3 | .97 | .94 | .91 | .88 | .85 | .83 | .80 | .78 | .75 | .73 |
| 4 | .96 | .92 | .88 | .84 | .81 | .78 | .75 | .72 | .69 | .67 |
| 5 | .95 | .90 | .86 | .81 | .77 | .74 | .70 | .67 | .64 | .61 |
| 6 | .94 | .88 | .83 | .77 | .73 | .69 | .65 | .61 | .58 | .55 |
| 7 | .93 | .86 | .80 | .74 | .69 | .65 | .61 | .57 | .53 | .50 |
| 8 | .92 | .84 | .77 | .70 | .65 | .61 | .57 | .53 | .49 | .46 |
| 9 | .91 | .82 | .74 | .67 | .62 | .58 | .54 | .50 | .46 | .43 |
| 10 | .90 | .80 | .71 | .64 | .59 | .55 | .51 | .47 | .43 | .40 |
| 11 | .89 | .78 | .69 | .61 | .56 | .52 | .48 | .44 | .40 | .37 |
| 12 | .88 | .76 | .67 | .58 | .53 | .49 | .45 | .41 | .37 | .34 |
| 13 | .87 | .74 | .65 | .56 | .51 | .47 | .43 | .39 | .35 | .32 |
| 14 | .86 | .73 | .63 | .54 | .49 | .45 | .41 | .37 | .33 | .30 |
| 15 | .85 | .71 | .61 | .52 | .47 | .43 | .39 | .35 | .31 | .28 |
| 16 | .84 | .69 | .59 | .50 | .45 | .41 | .37 | .33 | .29 | .26 |
| 17 | .83 | .67 | .57 | .48 | .43 | .39 | .35 | .31 | .27 | .24 |
| 18 | .82 | .65 | .55 | .46 | .41 | .37 | .33 | .29 | .25 | .22 |
| 19 | .81 | .63 | .53 | .44 | .39 | .35 | .31 | .27 | .23 | .20 |
| 20 | .80 | .61 | .51 | .42 | .37 | .33 | .29 | .25 | .21 | .18 |

TABLE 4

The Present Value of an Annuity of One Rupee

| Year | 1% | 2% | 3% | 4% | 5% | 6% | 7% | 8% | 9% | 10% |
|------|-------|-------|-------|------|------|------|------|------|------|------|
| 1 | .99 | .98 | .97 | .96 | .95 | .94 | .93 | .92 | .91 | .90 |
| 2 | 1.97 | 1.92 | 1.91 | 1.88 | 1.86 | 1.82 | 1.80 | 1.77 | 1.75 | 1.73 |
| 3 | 2.94 | 2.86 | 2.85 | 2.79 | 2.75 | 2.69 | 2.66 | 2.62 | 2.59 | 2.57 |
| 4 | 3.90 | 3.80 | 3.77 | 3.68 | 3.63 | 3.56 | 3.52 | 3.47 | 3.43 | 3.40 |
| 5 | 4.85 | 4.72 | 4.68 | 4.56 | 4.50 | 4.42 | 4.37 | 4.31 | 4.26 | 4.22 |
| 6 | 5.79 | 5.64 | 5.61 | 5.46 | 5.39 | 5.30 | 5.24 | 5.17 | 5.12 | 5.07 |
| 7 | 6.72 | 6.55 | 6.52 | 6.34 | 6.26 | 6.15 | 6.09 | 6.02 | 5.96 | 5.91 |
| 8 | 7.64 | 7.45 | 7.42 | 7.21 | 7.12 | 6.99 | 6.92 | 6.84 | 6.77 | 6.72 |
| 9 | 8.55 | 8.34 | 8.31 | 8.08 | 7.98 | 7.84 | 7.76 | 7.67 | 7.60 | 7.55 |
| 10 | 9.45 | 9.22 | 9.19 | 8.94 | 8.83 | 8.68 | 8.60 | 8.50 | 8.43 | 8.37 |
| 11 | 10.34 | 10.09 | 10.06 | 9.78 | 9.67 | 9.50 | 9.41 | 9.30 | 9.23 | 9.17 |

TABLE 4 (Contd.)

| Year | 1% | 2% | 3% | 4% | 5% | 6% | 7% | 8% | 9% | 10% |
|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 12 | 11.25 | 11.67 | 12.09 | 12.52 | 12.95 | 13.38 | 13.81 | 14.24 | 14.67 | 15.10 |
| 13 | 11.33 | 11.76 | 12.19 | 12.62 | 13.05 | 13.48 | 13.91 | 14.34 | 14.77 | 15.20 |
| 14 | 11.41 | 11.84 | 12.27 | 12.70 | 13.13 | 13.56 | 13.99 | 14.42 | 14.85 | 15.28 |
| 15 | 11.49 | 11.92 | 12.35 | 12.78 | 13.21 | 13.64 | 14.07 | 14.50 | 14.93 | 15.36 |
| 16 | 11.57 | 12.00 | 12.43 | 12.86 | 13.29 | 13.72 | 14.15 | 14.58 | 15.01 | 15.44 |
| 17 | 11.65 | 12.08 | 12.51 | 12.94 | 13.37 | 13.80 | 14.23 | 14.66 | 15.09 | 15.52 |
| 18 | 11.73 | 12.16 | 12.59 | 13.02 | 13.45 | 13.88 | 14.31 | 14.74 | 15.17 | 15.60 |
| 19 | 11.81 | 12.24 | 12.67 | 13.10 | 13.53 | 13.96 | 14.39 | 14.82 | 15.25 | 15.68 |
| 20 | 11.89 | 12.32 | 12.75 | 13.18 | 13.61 | 14.04 | 14.47 | 14.90 | 15.33 | 15.76 |
| 21 | 11.97 | 12.40 | 12.83 | 13.26 | 13.69 | 14.12 | 14.55 | 14.98 | 15.41 | 15.84 |
| 22 | 12.05 | 12.48 | 12.91 | 13.34 | 13.77 | 14.20 | 14.63 | 15.06 | 15.49 | 15.92 |
| 23 | 12.13 | 12.56 | 12.99 | 13.42 | 13.85 | 14.28 | 14.71 | 15.14 | 15.57 | 16.00 |
| 24 | 12.21 | 12.64 | 13.07 | 13.50 | 13.93 | 14.36 | 14.79 | 15.22 | 15.65 | 16.08 |
| 25 | 12.29 | 12.72 | 13.15 | 13.58 | 14.01 | 14.44 | 14.87 | 15.30 | 15.73 | 16.16 |
| 26 | 12.37 | 12.80 | 13.23 | 13.66 | 14.09 | 14.52 | 14.95 | 15.38 | 15.81 | 16.24 |
| 27 | 12.45 | 12.88 | 13.31 | 13.74 | 14.17 | 14.60 | 15.03 | 15.46 | 15.89 | 16.32 |
| 28 | 12.53 | 12.96 | 13.39 | 13.82 | 14.25 | 14.68 | 15.11 | 15.54 | 15.97 | 16.40 |
| 29 | 12.61 | 13.04 | 13.47 | 13.90 | 14.33 | 14.76 | 15.19 | 15.62 | 16.05 | 16.48 |
| 30 | 12.69 | 13.12 | 13.55 | 13.98 | 14.41 | 14.84 | 15.27 | 15.70 | 16.13 | 16.56 |
| 31 | 12.77 | 13.20 | 13.63 | 14.06 | 14.49 | 14.92 | 15.35 | 15.78 | 16.21 | 16.64 |
| 32 | 12.85 | 13.28 | 13.71 | 14.14 | 14.57 | 15.00 | 15.43 | 15.86 | 16.29 | 16.72 |
| 33 | 12.93 | 13.36 | 13.79 | 14.22 | 14.65 | 15.08 | 15.51 | 15.94 | 16.37 | 16.80 |
| 34 | 13.01 | 13.44 | 13.87 | 14.30 | 14.73 | 15.16 | 15.59 | 16.02 | 16.45 | 16.88 |
| 35 | 13.09 | 13.52 | 13.95 | 14.38 | 14.81 | 15.24 | 15.67 | 16.10 | 16.53 | 16.96 |
| 36 | 13.17 | 13.60 | 14.03 | 14.46 | 14.89 | 15.32 | 15.75 | 16.18 | 16.61 | 17.04 |

| Year | 11% | 12% | 13% | 14% | 15% | 16% | 17% | 18% | 19% | 20% |
|------|------|------|------|------|------|------|------|------|------|------|
| 1 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 | 1.01 |
| 2 | 1.12 | 1.25 | 1.26 | 1.27 | 1.28 | 1.29 | 1.30 | 1.31 | 1.32 | 1.33 |
| 3 | 1.44 | 1.46 | 1.48 | 1.50 | 1.51 | 1.53 | 1.54 | 1.55 | 1.56 | 1.57 |
| 4 | 1.67 | 1.70 | 1.72 | 1.74 | 1.76 | 1.77 | 1.79 | 1.80 | 1.81 | 1.82 |
| 5 | 1.89 | 1.91 | 1.93 | 1.95 | 1.97 | 1.99 | 2.00 | 2.02 | 2.03 | 2.04 |
| 6 | 2.07 | 2.10 | 2.12 | 2.14 | 2.16 | 2.18 | 2.19 | 2.21 | 2.22 | 2.23 |
| 7 | 2.26 | 2.29 | 2.31 | 2.33 | 2.35 | 2.37 | 2.38 | 2.40 | 2.41 | 2.42 |
| 8 | 2.46 | 2.49 | 2.51 | 2.53 | 2.55 | 2.57 | 2.58 | 2.60 | 2.61 | 2.62 |
| 9 | 2.51 | 2.54 | 2.56 | 2.58 | 2.60 | 2.62 | 2.63 | 2.65 | 2.66 | 2.67 |
| 10 | 2.56 | 2.59 | 2.61 | 2.63 | 2.65 | 2.67 | 2.68 | 2.70 | 2.71 | 2.72 |
| 11 | 2.61 | 2.64 | 2.66 | 2.68 | 2.70 | 2.72 | 2.73 | 2.75 | 2.76 | 2.77 |
| 12 | 2.66 | 2.69 | 2.71 | 2.73 | 2.75 | 2.77 | 2.78 | 2.80 | 2.81 | 2.82 |
| 13 | 2.71 | 2.74 | 2.76 | 2.78 | 2.80 | 2.82 | 2.83 | 2.85 | 2.86 | 2.87 |
| 14 | 2.76 | 2.79 | 2.81 | 2.83 | 2.85 | 2.87 | 2.88 | 2.90 | 2.91 | 2.92 |
| 15 | 2.81 | 2.84 | 2.86 | 2.88 | 2.90 | 2.92 | 2.93 | 2.95 | 2.96 | 2.97 |
| 16 | 2.86 | 2.89 | 2.91 | 2.93 | 2.95 | 2.97 | 2.98 | 3.00 | 3.01 | 3.02 |
| 17 | 2.91 | 2.94 | 2.96 | 2.98 | 3.00 | 3.02 | 3.03 | 3.05 | 3.06 | 3.07 |
| 18 | 2.96 | 2.99 | 3.01 | 3.03 | 3.05 | 3.07 | 3.08 | 3.10 | 3.11 | 3.12 |
| 19 | 3.01 | 3.04 | 3.06 | 3.08 | 3.10 | 3.12 | 3.13 | 3.15 | 3.16 | 3.17 |
| 20 | 3.06 | 3.09 | 3.11 | 3.13 | 3.15 | 3.17 | 3.18 | 3.20 | 3.21 | 3.22 |
| 21 | 3.11 | 3.14 | 3.16 | 3.18 | 3.20 | 3.22 | 3.23 | 3.25 | 3.26 | 3.27 |
| 22 | 3.16 | 3.19 | 3.21 | 3.23 | 3.25 | 3.27 | 3.28 | 3.30 | 3.31 | 3.32 |
| 23 | 3.21 | 3.24 | 3.26 | 3.28 | 3.30 | 3.32 | 3.33 | 3.35 | 3.36 | 3.37 |
| 24 | 3.26 | 3.29 | 3.31 | 3.33 | 3.35 | 3.37 | 3.38 | 3.40 | 3.41 | 3.42 |
| 25 | 3.31 | 3.34 | 3.36 | 3.38 | 3.40 | 3.42 | 3.43 | 3.45 | 3.46 | 3.47 |

TABLE 4 (Contd.)

| Year | 21% | 22% | 23% | 24% | 25% | 26% | 27% | 28% | 29% | 30% |
|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 1 | 1.21 | 1.22 | 1.23 | 1.24 | 1.25 | 1.26 | 1.27 | 1.28 | 1.29 | 1.30 |
| 2 | 1.46 | 1.48 | 1.50 | 1.52 | 1.54 | 1.56 | 1.58 | 1.60 | 1.62 | 1.64 |
| 3 | 1.77 | 1.80 | 1.83 | 1.86 | 1.89 | 1.92 | 1.95 | 1.98 | 2.01 | 2.04 |
| 4 | 2.14 | 2.18 | 2.22 | 2.26 | 2.30 | 2.34 | 2.38 | 2.42 | 2.46 | 2.50 |
| 5 | 2.59 | 2.64 | 2.69 | 2.74 | 2.79 | 2.84 | 2.89 | 2.94 | 2.99 | 3.04 |
| 6 | 3.12 | 3.18 | 3.24 | 3.30 | 3.36 | 3.42 | 3.48 | 3.54 | 3.60 | 3.66 |
| 7 | 3.74 | 3.81 | 3.88 | 3.95 | 4.02 | 4.09 | 4.16 | 4.23 | 4.30 | 4.37 |
| 8 | 4.46 | 4.54 | 4.62 | 4.70 | 4.78 | 4.86 | 4.94 | 5.02 | 5.10 | 5.18 |
| 9 | 5.19 | 5.28 | 5.37 | 5.46 | 5.55 | 5.64 | 5.73 | 5.82 | 5.91 | 6.00 |
| 10 | 5.94 | 6.04 | 6.14 | 6.24 | 6.34 | 6.44 | 6.54 | 6.64 | 6.74 | 6.84 |
| 11 | 6.80 | 6.91 | 7.02 | 7.13 | 7.24 | 7.35 | 7.46 | 7.57 | 7.68 | 7.79 |
| 12 | 7.87 | 8.00 | 8.12 | 8.24 | 8.36 | 8.48 | 8.60 | 8.72 | 8.84 | 8.96 |
| 13 | 9.16 | 9.30 | 9.43 | 9.56 | 9.69 | 9.82 | 9.95 | 10.08 | 10.21 | 10.34 |
| 14 | 10.59 | 10.74 | 10.89 | 11.04 | 11.19 | 11.34 | 11.49 | 11.64 | 11.79 | 11.94 |
| 15 | 12.18 | 12.34 | 12.50 | 12.66 | 12.82 | 12.98 | 13.14 | 13.30 | 13.46 | 13.62 |
| 16 | 13.95 | 14.13 | 14.31 | 14.49 | 14.67 | 14.85 | 15.03 | 15.21 | 15.39 | 15.57 |
| 17 | 15.94 | 16.14 | 16.34 | 16.54 | 16.74 | 16.94 | 17.14 | 17.34 | 17.54 | 17.74 |
| 18 | 18.19 | 18.41 | 18.63 | 18.85 | 19.07 | 19.29 | 19.51 | 19.73 | 19.95 | 20.17 |
| 19 | 20.74 | 21.00 | 21.26 | 21.52 | 21.78 | 22.04 | 22.30 | 22.56 | 22.82 | 23.08 |
| 20 | 23.61 | 23.90 | 24.19 | 24.48 | 24.77 | 25.06 | 25.35 | 25.64 | 25.93 | 26.22 |
| 21 | 26.84 | 27.17 | 27.50 | 27.83 | 28.16 | 28.49 | 28.82 | 29.15 | 29.48 | 29.81 |
| 22 | 30.48 | 30.85 | 31.22 | 31.59 | 31.96 | 32.33 | 32.70 | 33.07 | 33.44 | 33.81 |
| 23 | 34.60 | 35.02 | 35.44 | 35.86 | 36.28 | 36.70 | 37.12 | 37.54 | 37.96 | 38.38 |
| 24 | 39.29 | 39.76 | 40.23 | 40.69 | 41.16 | 41.63 | 42.10 | 42.57 | 43.04 | 43.51 |
| 25 | 44.67 | 45.19 | 45.71 | 46.23 | 46.75 | 47.27 | 47.79 | 48.31 | 48.83 | 49.35 |

TABLE 8 (Contd.)

| Rate | 1% | 2% | 3% | 4% | 5% | 6% | 7% | 8% | 9% | 10% |
|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 10 | 0.793 | 0.781 | 0.769 | 0.757 | 0.745 | 0.733 | 0.721 | 0.709 | 0.697 | 0.685 |
| 20 | 0.781 | 0.769 | 0.757 | 0.745 | 0.733 | 0.721 | 0.709 | 0.697 | 0.685 | 0.673 |
| 30 | 0.769 | 0.757 | 0.745 | 0.733 | 0.721 | 0.709 | 0.697 | 0.685 | 0.673 | 0.661 |
| 40 | 0.757 | 0.745 | 0.733 | 0.721 | 0.709 | 0.697 | 0.685 | 0.673 | 0.661 | 0.649 |
| 50 | 0.745 | 0.733 | 0.721 | 0.709 | 0.697 | 0.685 | 0.673 | 0.661 | 0.649 | 0.637 |
| 60 | 0.733 | 0.721 | 0.709 | 0.697 | 0.685 | 0.673 | 0.661 | 0.649 | 0.637 | 0.625 |
| 70 | 0.721 | 0.709 | 0.697 | 0.685 | 0.673 | 0.661 | 0.649 | 0.637 | 0.625 | 0.613 |
| 80 | 0.709 | 0.697 | 0.685 | 0.673 | 0.661 | 0.649 | 0.637 | 0.625 | 0.613 | 0.601 |
| 90 | 0.697 | 0.685 | 0.673 | 0.661 | 0.649 | 0.637 | 0.625 | 0.613 | 0.601 | 0.589 |

| Rate | 1% | 2% | 3% | 4% | 5% | 6% | 7% | 8% | 9% | 10% |
|------|-------|-------|-------|-------|-------|--------|--------|--------|--------|--------|
| 1 | 0.990 | 0.980 | 0.970 | 0.960 | 0.950 | 0.940 | 0.930 | 0.920 | 0.910 | 0.900 |
| 2 | 0.980 | 0.960 | 0.940 | 0.920 | 0.900 | 0.880 | 0.860 | 0.840 | 0.820 | 0.800 |
| 3 | 0.970 | 0.940 | 0.910 | 0.880 | 0.850 | 0.820 | 0.790 | 0.760 | 0.730 | 0.700 |
| 4 | 0.960 | 0.920 | 0.880 | 0.840 | 0.800 | 0.760 | 0.720 | 0.680 | 0.640 | 0.600 |
| 5 | 0.950 | 0.900 | 0.850 | 0.800 | 0.750 | 0.700 | 0.650 | 0.600 | 0.550 | 0.500 |
| 6 | 0.940 | 0.880 | 0.820 | 0.760 | 0.700 | 0.640 | 0.580 | 0.520 | 0.460 | 0.400 |
| 7 | 0.930 | 0.860 | 0.790 | 0.720 | 0.650 | 0.580 | 0.510 | 0.440 | 0.370 | 0.300 |
| 8 | 0.920 | 0.840 | 0.760 | 0.680 | 0.600 | 0.520 | 0.440 | 0.360 | 0.280 | 0.200 |
| 9 | 0.910 | 0.820 | 0.730 | 0.640 | 0.550 | 0.460 | 0.370 | 0.280 | 0.190 | 0.100 |
| 10 | 0.900 | 0.800 | 0.700 | 0.600 | 0.500 | 0.400 | 0.300 | 0.200 | 0.100 | 0.000 |
| 11 | 0.890 | 0.780 | 0.670 | 0.560 | 0.450 | 0.340 | 0.230 | 0.120 | 0.010 | -0.090 |
| 12 | 0.880 | 0.760 | 0.640 | 0.520 | 0.400 | 0.290 | 0.180 | 0.070 | -0.040 | -0.140 |
| 13 | 0.870 | 0.740 | 0.610 | 0.480 | 0.360 | 0.240 | 0.130 | 0.020 | -0.080 | -0.180 |
| 14 | 0.860 | 0.720 | 0.580 | 0.450 | 0.330 | 0.210 | 0.100 | 0.010 | -0.090 | -0.190 |
| 15 | 0.850 | 0.700 | 0.560 | 0.430 | 0.310 | 0.190 | 0.080 | 0.000 | -0.100 | -0.200 |
| 16 | 0.840 | 0.680 | 0.540 | 0.410 | 0.290 | 0.170 | 0.060 | -0.010 | -0.110 | -0.210 |
| 17 | 0.830 | 0.660 | 0.520 | 0.390 | 0.270 | 0.150 | 0.040 | -0.020 | -0.120 | -0.220 |
| 18 | 0.820 | 0.640 | 0.500 | 0.370 | 0.250 | 0.130 | 0.020 | -0.030 | -0.130 | -0.230 |
| 19 | 0.810 | 0.620 | 0.480 | 0.350 | 0.230 | 0.110 | 0.010 | -0.040 | -0.140 | -0.240 |
| 20 | 0.800 | 0.600 | 0.460 | 0.330 | 0.210 | 0.090 | 0.000 | -0.050 | -0.150 | -0.250 |
| 21 | 0.790 | 0.580 | 0.440 | 0.310 | 0.190 | 0.070 | -0.010 | -0.060 | -0.160 | -0.260 |
| 22 | 0.780 | 0.560 | 0.420 | 0.290 | 0.170 | 0.050 | -0.020 | -0.070 | -0.170 | -0.270 |
| 23 | 0.770 | 0.540 | 0.400 | 0.270 | 0.150 | 0.030 | -0.030 | -0.080 | -0.180 | -0.280 |
| 24 | 0.760 | 0.520 | 0.380 | 0.250 | 0.130 | 0.010 | -0.040 | -0.090 | -0.190 | -0.290 |
| 25 | 0.750 | 0.500 | 0.360 | 0.230 | 0.110 | 0.000 | -0.050 | -0.100 | -0.200 | -0.300 |
| 26 | 0.740 | 0.480 | 0.340 | 0.210 | 0.090 | -0.010 | -0.060 | -0.110 | -0.210 | -0.310 |
| 27 | 0.730 | 0.460 | 0.320 | 0.190 | 0.070 | -0.020 | -0.070 | -0.120 | -0.220 | -0.320 |
| 28 | 0.720 | 0.440 | 0.300 | 0.170 | 0.050 | -0.030 | -0.080 | -0.130 | -0.230 | -0.330 |
| 29 | 0.710 | 0.420 | 0.280 | 0.150 | 0.030 | -0.040 | -0.090 | -0.140 | -0.240 | -0.340 |
| 30 | 0.700 | 0.400 | 0.260 | 0.130 | 0.010 | -0.050 | -0.100 | -0.150 | -0.250 | -0.350 |

Question Paper

505

ECONOMICS - VI (Set A) (1999)

Paper: 052-0-0

Financial Economics

Full Marks: 50

The figures in the margin indicate the marks

Candidates are required to give their answers in their own words

as far as practicable

Group - A

Answer any five questions:

1. A person keeps ₹ 1,000 in each of two investment options, I_1 and I_2 , for 5 years. I_1 provides 5% simple interest rate per annum whereas I_2 provides 5% interest rate compounded yearly. What will be the maturity values of these two investments? 2
2. Suppose, you get ₹ 1,000 on maturity of a deposit of ₹ 1,000 for one year. If the nominal rate for that year was 7%, what was the rate of interest that you got actually on your deposit? 2
3. Indifference between bid price and Ask price of a bond. 2
4. What is yield curve? 2
5. Determine the present value of a perpetuity that pays ₹ 1,200 per year with 10% interest rate. 2
6. How could a risk-averse individual minimize risk of portfolio return when there are a mutual funds that are (i) uncorrelated, (ii) positively correlated? 2+2
7. If the spot rates for 1 and 2 years are $S_1 = 6\%$ and $S_2 = 6.5\%$, what is the forward rate $f_{1,2}$? 4
8. If the premium on a call option has declined sharply, does this decline indicate that the option is a better buy than it was previously? 2
9. State the one-third theorem. 2
10. What is the difference between simple and compound interest? 2
11. What is a commercial paper? 2
12. What is securitization? 2
13. Define price-yield curve. 2
14. State Forward price formula. 2
15. Define Debt-Equity Ratio. 2

Group - B

Answer any three questions:

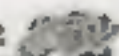
- (a) (i) Consider the following information for two assets:

| Asset | μ | σ |
|-------|-------|----------|
| A | 12% | 10% |
| B | 15% | 15% |

$\rho_{AB} = 0.01$

A portfolio is formed with weights $w_A = 0.2$ and $w_B = 0.8$.

Calculate the mean and variance of the portfolio.



- (d) Show the feasible set of two assets in a diagram. (1 + 2) = 3
- (e) Discuss the factors that affect stock option prices. 5
- (f) Explain the dividend payment process of corporation. 5
- (g) State and prove the portfolio diagram lemma. 5
- (h) Two stocks are believed to satisfy the two-factor model

$$r_1 = \alpha_1 + 2f_1 + f_2$$

$$r_2 = \alpha_2 + 3f_1 + 4f_2$$

In addition, there is a risk-free asset with a rate of return of 10%. It is known that $r_1 = 25\%$ and

$r_2 = 20\%$. What are the values of λ_0 , λ_1 and λ_2 for this model? 5

Group - C

Answer any three questions.

3. Assume that the expected rate of return on the market portfolio is 23% and the risk-free return is 7%. The standard deviation of the market is 32%. Assuming that the market portfolio is efficient.
- Derive the equation of the capital market line. Interpret the slope of the line.
 - What will be the standard deviation of this position if an expected return of 39% is desired?
 - If you invest £ 600 in the risk-free asset and £ 1,400 in the market portfolio, how much money should you expect to have at the end of the year?
 - Consider an asset with expected pay-off £ 1,000 and covariance of 0.154 with the market. Determine the current value of the asset. (2+2=1+2=3)
4. What is futures? How could you create a synthetic futures contract with purchase of a European call option and sale of a European put option, having same exercise price and same expiration date? 2+4
5. 'The CAPM is derived directly from the condition that the market portfolio is a point on the edge of the feasible region that is tangent to the capital market line.'— Discuss the statement. 10
6. Explain three standard explanations (or theories) for the Term Structure. 10
7. Show that points on the efficient frontier can be characterised by an optimisation problem, formulated by Markowitz. 10

